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DRUG ADDICTION

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DEFINITIONS—OLD AND NEW

THE DEFINITION OF DRUG ADDICTION most frequently quoted is that of Tatum and Seevers (1). In their words "addiction is a condition developed through the repeated action of a drug such that its use becomes necessary and cessation of its action causes mental or physical disturbances." They distinguish between true addiction and habituation, "a condition in which the habitue desires a drug but suffers no ill effects on its discontinuance." Other authors define habituation as *psychic dependence,* or *emotional dependence,* and distinguish it from *physical dependence.* Physical dependence (sometimes simply called dependence) is the necessity for regular doses of the drug to avoid *withdrawal symptoms,* which constitute a *deprivation syndrome.* It has been widely accepted that the criterion of a "true addiction" is the occurrence of a characteristic and distressing illness if use of the drug is stopped. Many drugs like morphine, and synthetic drugs of similar action can produce addiction with a spectacular and agonizing deprivation syndrome. They also induce *tolerance,* a state in which the doses required to produce desired effects are larger than were needed before the repetitive use of the drug. Cocaine, on the other hand, induces no tolerance and no deprivation syndrome. Yet cocaine is rightly regarded as a dangerous "habit forming drug." It is subject to the severe restrictions of our Opium and Narcotic Drug Act.

It is very important to distinguish clearly between the effects of sudden deprivation of cocaine and of morphine but it has proven embarrassing in a practical way to bind the word addiction to the occurrence of a serious deprivation syndrome. The tendency has been to say of drugs with less spectacular withdrawal symptoms "they don't cause true addiction, only habituation." Unfortunately such habits, whether true or false addiction, are often very destructive and very hard to break.

Attempts have been made in recent years to introduce a new definition of addiction. A Committee of the National Research Council of the U.S.A. has proposed a new definition. Another, which is rather similar, is that of Isbell (2), who offers the following: "Addiction is a condition of chronic intoxication which is usually based on a personality disorder,

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and which causes serious harm to the individual, society, or both, and which is condemned by the society in which the addiction occurs." The intent of this definition seems to be to take the word 'addiction' away from quibbling pharmacologists and make it more useful to practical politicians. With this purpose the writer cannot quarrel, and for the rest of this article the word 'addiction' will be used in the sense of Dr. Isbell's definition.

In this country then, the tobacco habit is not an "addiction." It would be in Saudi Arabia. The alcohol habit becomes an addiction at that indefinite point where society condemns it. We may, without regret, leave the word addiction to become the responsibility of the social sciences and coin another, if necessary, for the natural sciences. The word dependence may serve the purpose well enough.

THE NARCOTIC LAW

Our Opium and Narcotic Drug Act (1929) is probably the most stringent prohibition law ever enforced in a British country. It covers all derivatives of opium, cocaine and cannabis. Newer synthetic drugs with actions like those of morphine, such as Methadon and Pethidine, have been brought under the Act almost as soon as they became available. The Act gives authority to the Governor-in-Council to add to the Schedule (or remove from it) *any* drug "if deemed necessary in the public interest".

No narcotic drug, i.e. a drug under the control of the Act, may be manufactured in Canada. Import is permitted only to licensed agents through specified ports. Every phase of processing, distribution, and sale is rigorously supervised. A continuous war is waged against illicit traffic in these drugs. What is the result of this ceaseless warfare? A few years of enforcement greatly reduced the number of addicts to opiates in Canada, i.e. from perhaps 20,000 to about 4,000. For nearly two decades, however, the number of addicts has remained nearly constant in relation to the population of the country.

The question of greatest importance at this time is how far to extend the coverage of the Act. Should, for example, the barbiturate sedatives be brought under the Act? If so, why stop with the barbiturates? Why not include the monoureides and other hypnotic sedatives? They have all been convicted of inducing or sustaining serious and damaging addiction. Most doctors, pharmacists, and even enforcement officers shudder at the thought and devoutly hope that such drastic action will not be necessary.

If exploitation of these drugs becomes lucrative to criminals, drastic action will be necessary. As yet there is little evidence of such exploitation except of barbiturates. Even with these the opportunity for profit is not great because the barbiturates are readily available at reasonable prices, from more or less legitimate sources. Barbiturates are on the list of drugs which may be sold on prescription only, under the Regulations of the Food and Drug Act of Canada. This Act is very powerful in modifying the channels of legitimate trade. It has not the kind of teeth required to fight determined criminal practices. To a large extent the enforcement of the prescription list lies in the hands of doctors, dentists, veterinarians, and, above all, in the hands of the pharmacists. In my opinion enforcement should be left in these hands as long as possible.

THE SEDATIVE PROBLEM

In the abuse of barbiturates, doctors must accept some blame. They have treated the barbiturates much too casually. In extenuation, it may be said that only recently has valid and convincing evidence been presented to show the great extent and serious nature of addiction to barbiturates. Since barbiturates are on the prescription list they cannot be advertised to the public. If they are well known to the public (and they seem to be), very extensive prescribing by doctors must be largely responsible. Recently there has been an increase in advertising to the public of certain trademarked sedatives which contain, for the most part, drugs of the monoureide group. The advertising usually includes the statement "no prescription necessary". In this day of Government paternalism such a statement implies a presumption of safety. We may hope that advertising of this kind will be stopped. It can be stopped by putting all such drugs on the prescription list, or (less effectively) by putting insomnia on the list of conditions which may not be mentioned in the advertising of drugs to the public.

THE MAIN OFFENDERS

The drugs of addiction which cause concern to-day are Heroin, Morphine, and their derivatives, and synthetic relatives. These may be called the strong sedative analgesics. Then come the barbiturates, which are not analgesic but are hypnotic sedatives. Other hypnotics, such as chloral, bromide, paraldehyde, and monoureides, claim their quota of addicts but have not been regarded as serious hazards, perhaps because they are so cheap and available that they do not tempt the greedy criminal as a field for exploitation. Cocaine and amphetamine are drugs which are purely stimulant. Cocaine is esteemed for the erotic hallucinations which it is said to induce. Drug peddlers sometimes use it to attract recruits into the unhappy ranks of the addicts. The cocaine habit is seldom continued for long. It is usually replaced by something more satisfying like heroin. Amphetamine and its relatives are used to increase alertness and wakefulness. Their continued use cannot be very healthy but does not seem to be ruinous in the way that sedatives ruin a personality. Bizarre sensations are said to be induced by taking sedatives and amphetamine together.

Marihuana (Cannabis sativa) is a sedative and euphoriant. It hardly counts as a drug of medical interest at present. Indulgence is almost entirely by means of illicitly peddled cigarettes ("reefers"). Deprivation symptoms are not important. Although the abuse of marihuana is classed as an addiction by our new definition, it presents no medical problem and is regarded more as a sign of depravity than as an illness.

Alcoholism qualifies as an addiction under our definition. Judged by its frequency and the number of lives it has ruined, alcoholism should be regarded as a more serious menace than all other drug addictions put together. Many volumes have been written on the subject but we are far from achieving a consistent attitude towards the subject, much less a solution. Various aspects of the subject are dealt with in a recent number of the Ontario Medical Review (Dec. 1951).

BARBITURATE ADDICTION

The following quotation from a review by Isbell and Fraser (3) challenges the most widely held views on addiction

and may force a drastic change in our outlook.

"Barbiturates are addicting drugs no matter how the word addicting is defined . . . Addiction to barbiturates is far more dangerous and harmful than is addiction to morphine or other analgesic drugs. Barbiturate addiction is apparently increasing in the United States."

Two of these three statements require amplification. The first is based on the demonstration that the barbiturate addict experiences a serious and characteristic illness when deprived of his drug, thus justifying the inclusion of barbiturates among the drugs of addiction, even under the definition of Tatum and Seevers. Isbell maintains that the sudden separation of an addict from his drug is more dangerous to the life of the barbiturate addict than of the morphine addict. The morphine addict protests more violently about his agony and anguish but the barbiturate addict is sicker and weaker. Convulsions of the grand mal type often occur during the course of the deprivation syndrome, and so do psychoses. The worst of the illness occupies about a week and recovery may be almost complete in two to three weeks. The duration of the acute phase of the deprivation illness is thus rather longer with barbiturates than with morphine.

Isbell feels that withdrawal of barbiturates should be done gradually over a period of three to four weeks, whereas he recommends the complete withdrawal of morphine within 10 days. In many of our penal institutions the apparently healthy addict to morphine or heroin is cut off abruptly. They protest but they survive!

The second statement that barbiturate addiction is more harmful than morphine addiction, comes as a surprise to most physicians. It seems that the barbiturate addict in the full development of his affliction is more continuously confused, ataxic, and generally useless than the morphine addict. Falls and other accidents exact a high toll of injury.

The abuse of barbiturates is intimately connected with other addictions. Narcotic addicts and alcoholics, seem often to turn to barbiturates in their tortured efforts to escape from their first addiction. According to evidence of physicians experienced in the treatment of alcoholics, the barbiturate addiction is much harder to treat than the alcoholism. The patient is too confused to appreciate his plight, too stuporous to listen, too sluggish to worry about anything but his next meal and his next dose of drug. Like the narcotic addict, the barbiturate addict is unmanageable except under restraint. He must be committed. The same seems to be true (4) of the addicts now appearing who have adopted the monoureides, those drugs which are easier to get because they are not on the prescription list.

The drugs most favoured by barbiturate addicts are seconal, pentobarbitone, and amytal. Their popularity may be due largely to their widespread use as hypnotics. The addict develops little or no tolerance to barbiturates. The development of greater susceptibility has been reported. A dose of 1.5 to 2 Gm. a day is seldom exceeded. Recovery of mental and neuromuscular efficiency is slow after a period of addiction but seems to be complete, as judged by clinical signs. It will not be surprising to learn in future that some permanent damage to cortical functions may result from chronic intoxication. Many investigators have reported pathological

changes in the brains of animals subjected to prolonged intoxication with barbiturates (3, 5).

THE ADDICTIVE PERSONALITY

There is little doubt from general experience that some persons are much more attracted than others by the effects of various habit-forming drugs and thus are more susceptible to the development of a habit. Such persons are not all psychopathic, psychotic, or even neurotic. Many are essentially normal and healthy people by all ordinary standards. The essentially normal and socially adequate addict has a good chance to achieve a cure, even of addiction to morphine. Many hundreds of morphine and heroin addicts have been known to free themselves from the use of addicting drugs and to remain free for the rest of their lives. Recovery is not easy. The effort and torture involved can hardly be appreciated by the inexperienced. The eloquent descriptions of De Quincey (6) gives us some insight into the intensity of the struggle. The addict with a mental or emotional handicap has, indeed, a sad prospect.

SUMMARY

1. Previous definitions of addiction made the occurrence of physical dependence on the drug the identifying criterion. The dependence induced by drugs like morphine has such a dramatic deprivation syndrome that the deprivation syndromes of other sedative drugs have been overlooked or belittled.

2. The deprivation syndrome of barbiturate addiction has been studied recently and has been shown to be a serious illness.

3. The trend of recent definitions of addiction is to make the word synonymous with a deplorable drug habit, i.e. a concept with a moral or social component. Such definitions are not very useful in natural science. However, we may surrender the term without regret. The word dependence can take its place.

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Oh! just, subtle, mighty opium! that to the hearts of the poor and the rich alike, for the wounds that never heal, and for the pangs that tempt the spirit to rebel, bringest an assuaging balm; eloquent opium . . . . . which brings a brief oblivion to the wrongs undressed and insults unavenged.

DeQuincy

WHAT IS PSYCHOLOGICAL MEDICINE?

PART II

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THE "BASIC SCIENCES" OF THE MIND

ANATOMY: It is another limitation of the human mind that it loses itself in abstract meanderings. Methinks my reader may have experienced this already. In this labyrinth, there is a tendency to use pictorial images as an aid. At the risk of appearing puerile in oversimplifying, nonetheless consistent in teaching the subject in the traditional objective manner, I am in the habit of constructing a diagram representing the anatomy of the mind. The only request I make is that you project it three-dimensionally out of the paper.

The essential structure is that of a personal world sphere, personality, containing a hollow equilateral pyramid with three facets:

A) The sensorium or cognitive (9)
B) The affective (10)
C) The conative (11)

Stimuli travel from both the outer and inner worlds in the special senses and hence penetrate the personality shell (body and mind to be perceived in the sensorium. Almost instantly an appropriate emotion is associated with the perception. The emotion is rarely pure; though rich in nuances, it has pleasure or pain, or the more sophisticated love or hate as its opposite poles. Rarely are thoughts (verbalized) associated, and they range from the highest conative process, abstract thought, to concrete or emotive thinking. Behaviour projects back into the outer circle (environment) usually as the result of emotion (e.g., mimicry or pantomine, play, laughter and tears, etc.)—and sometimes a combination of emotion and thought (speech). Thus, one individual communicates with another.

At the top of the pyramid is represented the "cone of consciousness", where attention can hold only one or two ideas or feelings at one time.

Deeper is the preconscious system whose ideation and emotion are below threshold; and, deeper still, buried in an infinitely vaster abyss, is the unconscious where the memory traces and engrams of the happenings of a lifetime lie buried.

At the level of the conscious and preconscious systems, there is the Ego—man as he knows himself to be. Beneath this conscious level, and penetrating somewhat is the Super Ego—man as he feels he must be. The Super Ego is clearly related to conation and more negative effects. Diffused in the vast spaces of the unconscious is the Id—man as a nebulous mass of irrational emotive drives and impulses resting on the vast sediment of his racial unconscious (from Pithecanthropus Erectus of Java to Darwin).

It will be observed that man has two ways of knowing himself: one is by projecting his Ego outside and looking within (inner vision or introspective sense), and the other is a mirror-like re-

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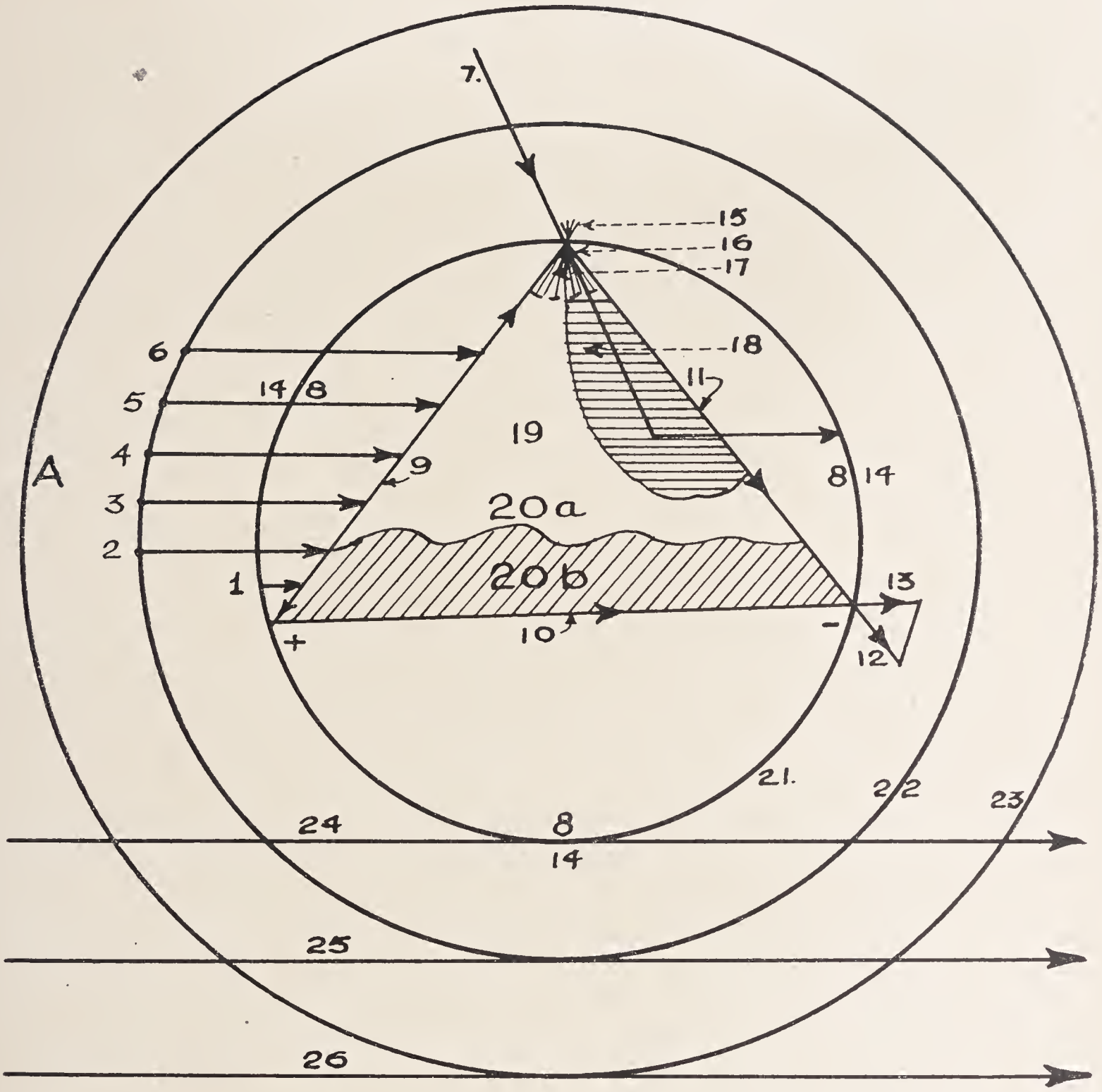
Fig. 1



A Stimuli — senses
- 1=Somatic and proprioceptive
- 2=Olfactory
- 3=Gustatory
- 4=Tactile
- 5=Auditory
- 6=Visual
- 7=Introspective (inner vision)

8=Body (inner shell)
9=Cognition
10=Affect
+=pleasure or love
−=pain or hatred
11=Conation
12=Thoughtful behaviour (speech)
13=Emotional behaviour
14=Body image (outer shell=the mental image a person has of his own body)
15=Cone of consciousness (conscious level)
16=Ego
17=Preconscious (subconscious level)
18=Superego
19=Id
20=(a)=personal unconscious
(b)=racial unconscious
21=Total personality (microcosmos) — the sphere containing all the above mentioned structures
22=Total (personal) environment
23=Outer world (macrocosmos)
24=Personal time (1) Psychic
(2) Biological
25=Historical time
26=Cosmic time

flection of his behaviour (triangle) back from his environment. Both behaviour and introspection are clearly associated with the cone of consciousness—the behaviour triangle was placed at another corner for convenience.

The mind envelops the physical shell (skin) of the body by what is called "body-image." The body itself is incorporated in the personality system as the inner aspect of the sphere. This sphere of total personality is a little world—the microcosmos; it exists in an immediate environment of family, work setting, and ultimately in the world at large—the macrocosmos.

Physiology

But these three-dimensional systems are not static. They move relative to others in different times.

The macrocosmos moves in slow cosmic time, in which a man's lifetime is but a flicker; the man's more immediate environment moves in faster historical time, and man himself has his personal 1) biological, and 2) psychological times. He will develop his functions, alongside his physical and mental anatomy, in his lifetime. They will reach a peak between 16 and 30, and then decay differentially. Throughout this lifetime, he will be trying to strike a balance with his environment (inner and outer). The Ego will be threatened from both sides.

The dynamic processes will be derived from conflicts inside and outside—i.e., between the different systems (Super Ego and Id; personality and environment). The instincts will provide the propelling energy, and if reduced to a minimum, they are bipolar (like their supporting emotions, love and hate).

1.) Self defence (aggressive) and race preservation (sexual)—making for life.
2.) Death wish—making for destruction of life.

They would be biological handmaidens to the cycle of anabolism and catabolism, life and death, which follows with monotonous regularity. The reactions to stress or danger, threatening the structure, (anatomy) are:

1.) Fight—varying from normal aggression to hostile, anti-social psychopathy.
2.) Flight—varying from normal discretion to hysteria and schizophrenia.
3.) Compromise—varying from British diplomacy to psychosomatic reaction.

In endeavouring to reach an equilibrium (homeostasis), and continue development, a reaction, faulty or healthy, will become established (conditioned response). At first, it will be reversible but ultimately, it will become irreversible. Personality will be either enriched, if the reaction is adequate, or impoverished by inadequate reaction in defense of the Ego, just as physiological mechanisms come to support somatic structure. Repression is one such mechanism, which when exaggerated leads to dysfunction or neurosis.

It will be obvious that all this happens to a personality in a world of men. Hence, two further basic sciences of the mind are: Anthropology and Sociology.

Embryology

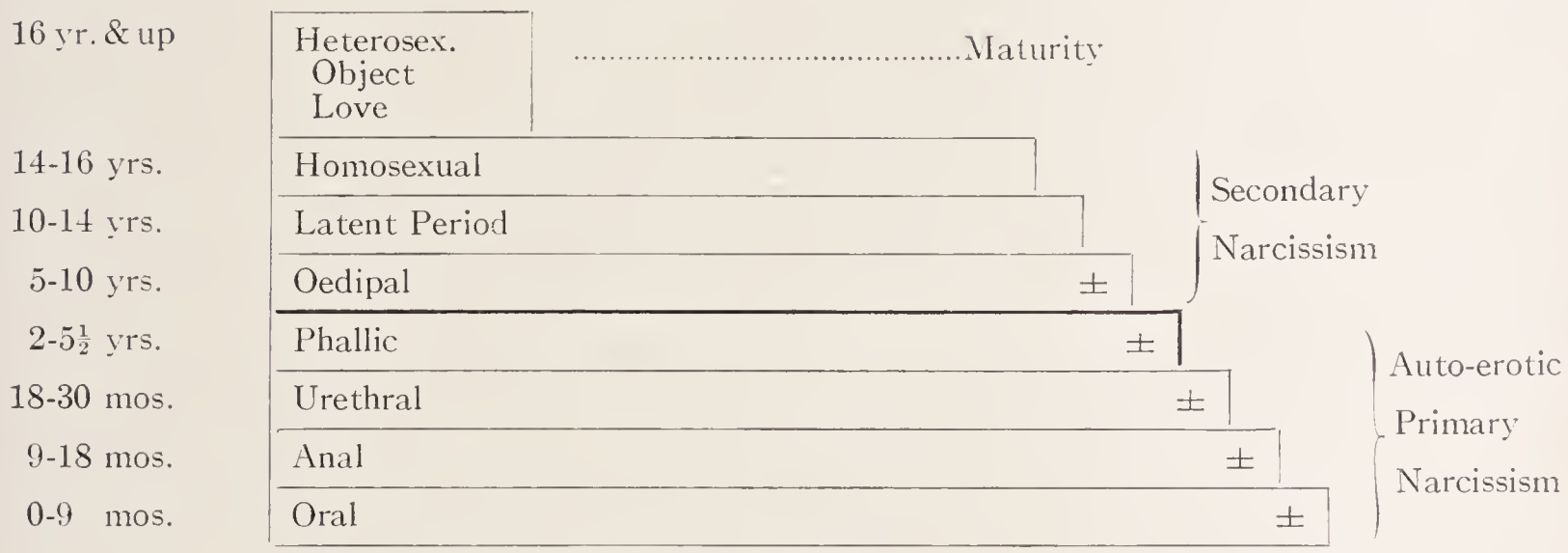
The cognitive and conative facets of the mind will parallel encephalization. Behaviour will be affected by myelinization and muscular development, (see control of urine and faeces and walking). On the more primitive affective

facet, one may postulate (hedonistically) emotional energy or libido, undergoing progressive stages of organization. These stages are biologically rooted and follow erogenetic zones in the body, in a drive for pleasure (love). Thus, figure II.

These steps follow the organization of sexuality (in a broad sense) of the child from a positive oral stage, (sucking), to a negative (biting) thence, to anal (faecal play and constipation), urethral, (eneuresis and normal function), phallic (primary masturbation), Oedipal (mother or father love). To reach this point, the child leaves his own body as the auto-erotic object, and becomes less narcissistic—less in love with himself. This concept will become less fantastic when one remembers how much younger man is compared with, say, the lizards of two hundred million years ago, in the mesozoic era. Also one should remember that Darwin raised mankind from apehood only the other day. The steps overlap in that each one (say pipe-smoking and coke drinking for oral) leaves its mark on the structured personality (like, say, the foramen ovale in the somatic counterpart).

FIGURE II

STAGES OF ORGANIZATION OF LIBIDO*



*For our Culture.

The advantages of this concept are that:

1. Psychological immaturity can be assessed on explicit criteria on any stage below that of object love and maturity.
2. Arrest or fixation of character may occur at any recognizable stage with correlated and thus better understood psychiatric reactions.
3. Regression may take place e.g. as in the seventh age of man, "sans teeth", sucking and puking, or as in dreams or as in schizophrenia. Regression is part of the picture of the so-called deterioration of the personality. These developmental stages and conflicts arising from negotiating them, must also be taken into account in a diagnostic formulation.

MENTAL HYGIENE AND SOCIAL PATHOLOGY

Space does not allow a discussion of the principles of psychosomatic medicine. Suffice it to say that we have reached a

point when the dictum, "*mens sana in corpore sano*" can be completed with "*et corpus sanum in mente sano*".

The aim of Medicine is prevention rather than cure. Its history shows how the discovery of bacteria and of nutritional factors and advances in obstetrics led to wholesale savings of lives. Indeed some diseases (all the man-made ones, like the industrial) are preventable, rather than curable. Professor Adrian, in his optimism, believes that in a hundred years or so there will be no illnesses left, save traumatic and psychological. He, like other enlightened medical thinkers, recognizes the need for mental hygiene. Indeed, progress in psychiatry, traditionally derived from the study of the abnormal to the normal, has spread from the study of the individual to that of the family, the group, social class, and nation; it has led to extensive application of psychological principles to these human organizations.

Poets and artists generally, with their unerring insight, have long preceded physicians in this field. Now, more and more, their Art is harnessed to our Science and disseminated. Education, including that of the students and doctors, of public leaders, and schoolboys, will not solve the problem in a generation, as Victor Hugo believed; but it plays a major role. Guidance in school and family, marital counselling, social agencies, child and adolescent clinics, psychosomatic units in general hospitals, psychiatric consultations in the care of the aged, and expert opinions on boards controlling various human activities (from nursery schools to industrial and military organizations) are some of the measures already in practice. This is a far cry from Sydenham's belief that jaundice was due to hysteria. Sir William Beveridge defined the ills of mankind as: squalor, ignorance, poverty and disease; and Mrs. Roosevelt has added war. Our essential concern is so-called "disease", and it is greatly dependent on the others. The nation is made up of individuals and groups, and international relationships are made by human representative links. Individual, group or class pathology will be reflected in the whole nation. Dynamics are discernible and diagnosis possible. On this basis mass treatment may follow. One of the important facts uncovered by Psychology, is that verbal and behavioural communication, among human beings, makes for mental health. If this, and the principle of selection of leaders (as the officers were selected in the late war) is followed through, some headway may be made into the social pathology which threatens to destroy us all, before we learn even how to live.

CONCLUSION

If Medicine were to embody humanism, historical, and natural science as Walsh would have it, and if the physician were to follow Hippocrates' precept to enter whatever house for the benefit of the sick, then there would be no such thing as Psychological Medicine. For, the word "psychological" introduces a split in the mind-body continuum, and Medicine and the Physician would be so generously endowed that even the psychiatrist might be satisfied.

N.B. For those interested in the philosophy of Medicine a list of references is given below:

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THE Rh FACTOR AND PREGNANCY

F. G. MARK, 5T2

INTRODUCTION

In the past, physicians have been handicapped when dealing with an Rh-positive husband and an Rh-negative wife in the presence of pregnancy. The unfavorable accounts given in articles concerning this condition which have appeared in popular magazines have done much harm to the peace of mind not only of pregnant women but also of the recently married and those contemplating marriage. This article is presented to convey to the medical student and the physician the various aspects which may be encountered in dealing with the Rh problem in pregnancy.

Role of the Physician

Every physician who performs blood transfusions, or who cares for expectant mothers or newborn babies should be thoroughly familiar with the principles of the blood groups and isoimmunization. He must be able to deal with the problems concerning delivery of an erythroblastotic baby, and also answer the questions which the mother would naturally ask. There has been much progress in the understanding of this problem since the discovery of one component member of the Rh-Hr antigen system in 1940 by Landsteiner and Wiener, but there still remain many problems waiting to be clarified which may modify or change our present day concepts.

INCIDENCE

Studies on the Rh factor and the Rh genotypes of the husbands of immunized women reveal that homozygous positive males exceed heterozygous positives by about three to one. One must not forget the fact that there are the small number of Rh-negative husbands, thus a heterozygous positive or Rh-negative husband could father an Rh-negative child. Approximately 0.5 per cent of all deliveries result in Rh factor mismatings giving rise to erythroblastotic babies. Many, possibly the majority, of Rh-negative women may bear two or even more Rh-positive infants before developing a sufficient immunization to produce an erythroblastotic infant.

DIAGNOSIS

Routine antepartum testing for Rh antibodies should be done on all Rh-negative multiparas and primiparas who give a history of previous blood transfusion or intramuscular injection of blood, if their husbands are Rh positive. If, in any expectant mother, the history reveals an unexplained miscarriage or stillborn infant (especially if her first baby was normal) one's suspicion should be aroused as to the possibility of isoimmunization. The history of the birth of an anemic, jaundiced, or edematous infant, or a combination of any of these, is presumptive evidence of this condition.

THE Rh ANTIBODIES

There are two main varieties of Rh antibodies.

(1) *Agglutinating antibodies* (saline agglutinin, bivalent antibodies). These clump positive cells in saline as well as in other mediums.

(2) *Conglutinating antibodies* (univalent, hyperimmune, blocking or "incomplete" antibodies, and albumin or serum agglutinins). These do not clump positive cells in saline mediums but do clump cells in plasma, albumin and similar mediums.

Tests for Blocking Antibodies

Early efforts to correlate the degree of isoimmunization with the occurrence and degree of severity of Erythroblastosis Fetalis were not successful mainly because the only antibody which could be quantitatively determined was the saline agglutinin. This type of antibody is not present at all in a large proportion of isoimmunized women and is rarely found in the newborn infant's blood. For practical purposes, only the univalent antibodies traverse the placental barrier and are clinically significant.

A variety of tests are now in use for the detection of blocking antibodies antenatally in the serums of Rh-negative patients. They are, in increasing order of sensitivity:

(1) The blocking test.
(2) The conglutination test.
(3) The antiglobulin test.
(4) The test with enzyme-treated cells.

Since a number of tests of different sensitivities are available to detect univalent Rh antibodies, the report of antibody titer should specify the method used. If the results of the most sensitive tests, namely, the antiglobulin or test with enzyme-treated cells, are negative, then one may predict with relative certainty that the baby, even though Rh-positive will not be erythroblastotic. When the result of the conglutination test is negative, but results of tests with enzyme-treated cells or with the antiglobulin method are positive, the Rh-positive baby will probably be so mildly affected that no treatment will be required. However, when results of tests with the conglutination method are distinctly positive, the Rh-positive baby will generally be affected and the severity of the manifestations will tend to vary with the antibody titer, though notable exceptions occur. If the antibodies are so strong that the blocking test is distinctly positive, then there may be about a 50 per cent chance that the Rh-positive baby will be stillborn. The severity of the illness in the fetus or baby depends on the height and duration of presence of the maternal antibody titer, though there are other factors that also appear to play a role. The more sensitive tests are relatively new innovations and are not yet available in all localities.

PROGNOSIS

If a patient is found to be Rh-negative, then it is essential to determine the blood type of her husband as the prognosis of such a pregnancy depends primarily on the Rh type of the fetus. Should the husband be found to be Rh-negative there will be no danger of having an erythroblastotic infant; should he be found to be Rh-positive, an effort should be made to determine his genotype. Therefore, the husband should have more complete Rh-Hr tests, and the blood of any living children should be typed as well as the blood of the husband's parents to determine if possible, whether the husband is homozygous or heterozygous. If the husband is heterozygous, there is a 50 per cent chance that the baby will be Rh-negative, in which case the maternal Rh antibodies cannot harm it. If the husband is heterozygous (Rhrh) and the

titer remains constant, the baby will probably be Rh-negative. This is not true in all cases as some highly immunized Rh-negative women may actually show a rising Rh antibody titer and still bear an Rh-negative infant. One must remember that while identical twins have the same blood type, fraternal twins may or may not have identical blood types.

Thus the basis for the prediction of the birth of an Rh-negative infant to a sensitized Rh-negative woman is (1) the determination of the Hr status of the husband, and (2) the trend of the maternal Rh antibody titer. The previous obstetrical history, especially pertaining to the birth of infants affected by hemolytic disease, is of great significance, for the occurrence of such signs will generally preclude all succeeding Rh-positive infants to be more severely affected.

Rh HAPTEN

Once a patient has become sensitized to the Rh factor, nothing can be done to eliminate or reduce the Rh antibody titer. Several investigators have attempted the extraction of the essential Rh fraction which is undoubtedly present in human Rh-positive erythrocytes. The Rh haptens prepared to date have no clinical value in altering the fetal prognosis although an occasional good result may be anticipated because of the variability of the disease. No Rh-sensitized woman should be encouraged to conceive in the hope that hapten therapy will alter the prognosis for the child.

ROUTINE FOR PRENATAL TESTING

The frequency that serological studies are done on Rh-negative pregnant women vary somewhat and is dependent upon a number of factors, the most prominent being the availability of special facilities for Rh studies and the cost entailed. In Baltimore, under the auspices of the Obstetrical and Gynecological Society, they have been able to carry out complete studies on all patients at hardly any cost to the patient. The tests are done on the pregnant women at monthly intervals during the first two trimesters and at biweekly intervals in the last trimester after the initial typing and family studies. In view of the rarity of Erythroblastosis in the first-born child, except when there is a history of a transfusion of Rh-positive blood, serological examinations may be limited to several tests made at intervals after the thirty-fourth week of pregnancy. If facilities are limited similar procedures may be followed in dealing with the multiparous as with the primiparous patient with intensive studies only after the thirty-fourth week, thus allowing adequate time for planning the management of the case.

PREMATURE DELIVERY

Premature delivery is justifiable under some circumstances, for example, if tests indicate that the fetus in utero is almost surely Rh-positive, it might be possible to save the baby by delivering it prematurely and treating it without delay by exchange transfusion. If the tests indicate that there is a possibility of the fetus being Rh-negative, the pregnancy should be permitted to go to term. Premature delivery should seldom be undertaken prior to the thirty-seventh or thirty-eighth week of pregnancy because of the superimposed dangers of prematurity on an already sick infant. The indications for adoption of such a plan

of action is enumerated by Sacks as follows:

(1) a previous history of the birth of an infant with unmistakable evidences of erythroblastosis fetalis;
(2) the existence during a considerable portion of the current pregnancy of a significant titer of antibodies;
(3) reasonably certain evidence of homozygosity of the husband;
(4) progressive and even sharp rise in antibody titer during the last trimester of pregnancy.

Induction of labor is usually the method of choice with Cesarean section being rarely indicated. There must be available the necessary equipment for the probable exchange transfusion plus adequate facilities for the management of premature infants.

PROPHYLAXIS

If a husband is Rh-positive and homozygous, while his wife is Rh-negative and strongly sensitized to the Rh factor, under such circumstances every child will almost surely be Rh-positive and therefore severely erythroblastotic; in fact, every fetus will likely be stillborn and only in exceptional cases will a viable erythroblastotic baby be born that can be saved by exchange transfusion or any other treatment. If the parents have already had one or more severely affected or stillborn infants, it would be wise to advise the parents to practice contraception, and should the wife become pregnant again, a therapeutic abortion would be indicated. Therapeutic abortion is justifiable because such a pregnancy is almost certain to terminate with a hydropic stillbirth, and such stillbirths may be associated with increased danger to the mother from toxemia and postpartum hemorrhage. If the patient becomes pregnant another time, the question of sterilization of the patient or her husband should be considered. If the parents are very anxious to have a child, they could adopt one.

TREATMENT OF THE NEWBORN INFANT

When a baby is born with Rh-positive blood from a mother who had a significant level of univalent Rh antibodies antenatally, the baby will almost surely be erythroblastotic so that some workers find it justifiable to proceed with an exchange transfusion on these findings alone. However, many workers prefer to wait and perform tests which might show the baby to be clinically ill. For this purpose the hemoglobin concentration, the icterus index of the cord serum, and the test for coating of the baby's red cells by Rh antibodies (antiglobulin, or Coomb's test, and conglutination test) are most helpful.

Transfusions are now being done in the first twenty-four hours of life with donor blood being Rh-negative in all cases preferably with type specific blood. When this form of therapy was inaugurated, about 200 cc. of blood was replaced and an additional 50 cc. given, but now close to 500 cc. is replaced and an additional 50 cc. given. This results in approximately a 90 per cent substitution, i.e., 90 per cent of the blood remaining after completion of the procedure will be Rh-negative. The only real danger of this procedure is that of hypocalcemia, but this may easily be averted by giving 1 cc. of a 10 per cent calcium gluconate solution for every 100 cc. of blood injected.

Incidentally, it has been demonstrated that the breast milk of sensitized women

contains antibodies, whether or not they are absorbed through the infant's intestinal mucosa in significant amounts awaits to be determined; in the meanwhile it would seem safer to recommend abstinence from breast feeding.

CONCLUSION

Emphasis must be placed on the firm insistence that only blood of compatible Rh-negative donors be employed for transfusions to Rh-negative females, whether infants or adults, in an attempt to lower the incidence of Rh sensitization. The problem of the Rh factor and pregnancy will not be completely solved until effective methods have been devised for treating sensitized Rh-negative women, so that they will be able to bear normal Rh-positive infants.

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To study Medicine without books is to sail an uncharted sea, while to study Medicine only from books is never to go to sea at all.

WILLIAM OSLER

SCOLIOSIS

G. J. HALPERN, 5T2

DEFINITION

Scoliosis is lateral curvature of the spine, accompanied by longitudinal rotation of the vertebrae.

ANATOMY

The spine is built up of 33 vertebrae, grouped according to regions:

(a) Movable or True Vertebrae:
- 7 Cervical
- 12 Thoracic or Dorsal
- 5 Lumbar

(b) Fixed or False Vertebrae:
- 5 Sacral, fused in the adult to form the sacrum; and 3 to 5 Coccygeal, fused to form the Coccyx.

Adjacent bodies of the true vertebrae are united by a fibrocartilaginous disc. The vertebral column, as a whole, is 28 inches long in men, 24 inches in women. The bodies of the vertebrae form the column which supports the head and trunk. The vertebral spines and transverse processes are levers for muscular attachment. In neuropathic and myopathic scoliosis, it is the unequal pull on the transverse processes, in particular, that produces the deformity.

In scoliosis, the whole spine may be involved in one curve, and this is known as Total Scoliosis, but more usually, two curves are present, one primary, the other compensatory. The most common variety is that in which there is a dorsal convexity to the right, and a lumbar convexity to the left. Occasionally this condition is associated with a kyphosis, or backward curvature of the spine, and it is then known as kypho-scoliosis.

In addition to the lateral displacement, the bodies of the vertebrate are always rotated towards the convexity of the curves.

There are secondary changes in the thoracic cage and pelvis, which will be described later.

In the early stages of scoliosis, the characteristic deformity disappears on extension of the trunk, or by bending forwards, but as the condition progresses, the spine becomes more and more fixed. In advanced cases, especially when associated with kyphosis, the deformity becomes so marked as to simulate the "hump" formed in Pott's disease and the patient's stature becomes dwarfed and stunted.

CLASSIFICATION AND ETIOLOGY

The classification of scoliosis may be summarized as follows:

A. Congenital

B. Acquired:
1. Osteopathic
2. Neuropathic
3. Myopathic
4. Idiopathic
5. Miscellaneous

Congenital

A great variety of anomalous developments in the spine, thorax and shoulder girdle may appear with, or cause, lateral deviations of the spine. The vertebral bodies may appear as either single or multiple incompletely segmented bodies, and their positions and shapes determine the design of the scoliotic curves.

Probably the most common anomaly is a hemivertebra and the most common site for the production of marked deformities is the 5th Lumbar vertebra. Scoliosis due to a Sprengel's deformity ("winged" scapula) or to congenital torticollis require only appropriate treatment for the primary condition.

Acquired

OSTEOPATHIC OR RACHITIC:

In this type of scoliosis, it is assumed that a generalized constitutional factor, a metabolic basis, is responsible for the lack of resistance of the bone tissue of the spinal column against gravital stresses. The most characteristic of this type of scoliosis is where there is a high cervico-dorsal curve. Another type is the lumbo-dorsal form, which is a direct progression of the usual low dorsal or lumbo-dorsal anteroposterior curve of infantile rickets.

NEUROPATHIC:

Paralytic scoliosis is due to the muscular imbalance which occurs as a sequel to poliomyelitis. These cases account for 5 to 10 per cent of all lateral deformities of the spine. Such scoliosis should be anticipated wherever there is extensive paralysis of either the upper or lower extremities. It follows no pattern, as it is entirely dependent upon the distribution of the paralysis. Bilateral symmetrical paralysis of the musculature of the back usually leads to simple lordosis; of the abdominal muscles, to a simple kyphosis. It is in the unilateral or asymmetrical paralysis of the muscles of the back that a lumbo-dorsal or dorsal scoliosis develops. Usually the convexity will point to the sound side.

Spastic scoliosis is observed occasionally in spastic paralysis, in tumors of the spine, or in other spinal cord diseases, such as syringomyelia and perhaps amyotrophic lateral sclerosis.

MYOPATHIC:

This rare type of scoliosis is seen in certain of the muscular dystrophies, where there may be an asymmetrical atrophy of the muscles of the back. There is no associated lesion of the nervous system, and the disease is a primary one of the muscles themselves. Again, it is the unequal pull on the transverse processes of the vertebrae which causes their rotation and lateral displacement.

As the prognosis in these cases is rather poor, and the general disability great, the problem of managing the scoliosis does not arise.

IDIOPATHIC OR HABITUAL:

In fully 80 per cent of all cases of scoliosis, no cause for the deformity can be determined. It is assumed that a general or constitutional predisposition exists. It may be the anatomic build, the general habitus, an acquired or inherited weakness or relaxation of the spine, or some inherent muscular weakness. Recent investigations point to the role of the intervertebral disc as being the probable starting point from which the structural changes develop. It is estimated that 20 to 30 per cent of all school children are afflicted. It has therefore been referred to as a "School scoliosis." Poor posture increases and facilitates a tendency to scoliosis formation, and hence prophylactic exercises for the school child and instruction in correct attitude are important factors in reducing the incidence.

In the habitual type, two main groups are usually distinguished, namely, the right dorsal, with a secondary left lumbar curve, and the left total type.

These form the great majority of cases of habitual scoliosis, and occur far more commonly in girls than in boys.

MISCELLANEOUS:

In *empyema*, a lateral curvature of the spine often develops. It is a simple contracture with a convexity toward the sound side, caused passively by the contraction of the empyemic scar. There is no rotation of the vertebrae.

The so-called *hysterical* type of scoliosis is not a true scoliosis but a contracture, a pure inclination deformity, characterized by a total curve usually at the lumbo-dorsal junction.

In *traumatic* scoliosis, a lateral deformity of the spine follows compression fractures of the vertebral bodies or their processes, and there is degeneration and shrinkage of the disc. But again, this is not a true scoliosis because there is no rotatory deformity. *"Sciatic"* scoliosis is also not a true scoliosis. It is due to the involuntary assumed position of inclination as a result of muscular contracture which follows back injury with sciatic radiation. The pain is also probably a factor in initiating the assumed position.

Static scoliosis refers to the compensatory curvature of the spine arising from inequality of the length of the legs, and it is likewise merely an inclination deformity of the lumbar spine. The movability of the spine is retained, and there is no rotation, at least for a long time. However, a true structural scoliosis may ultimately develop from it.

Thus, any condition of asymmetry of the body may lead to a compensatory scoliosis; for example, a child with strabismus who habitually flexes and rotates his head laterally in order to focus his eyes better, will gradually develop so-called "Ophthalmic scoliosis".

PATHOLOGY

The development of scoliosis can be divided into two stages, the inclinatory or functional stage, and the structural. In the first stage the lateral deviation of the spine and rotatory movement of the vertebrae are within physiologic limits, and the apparent deformity may be regarded as a functional adjustment or response to stresses tending to disturb the equilibrium of the body skeleton. The structural stage commences, however, when it becomes apparent that the lateral and rotatory displacements are beyond the physiologic limits of movement of the normal spine, and therefore must be conditioned by certain changes of the soft structures, discs and ligaments, or changes within the vertebrae themselves. The patient can no longer voluntarily reverse the spinal deformity, which soon produces characteristic secondary changes in other regions of the skeleton.

The more important pathologic changes in the spine are as follows:

1. Lateral displacement and longitudinal rotation of the vertebrae.
2. At the apex of the scoliotic curve, the vertebral body becomes wedge-shaped.
3. The intervertebral discs undergo compression on the concavity of the curve.
4. The intervertebral foramen becomes egg-shaped due to the rotational deformity of the neural arches.

In the thorax, the rotated dorsal vertebrae carry the ribs with them, so that there is backward projection and increased angulation of the ribs on the convex side of the curve, with subsequent flattening of the rib curve on the concave side. This deformity of the ribs is primarily a result of the spinal rotation, but, once deformed and more

steeply angulated on the convex side, they exert counter-pressure upon the vertebrae, and so in their turn increase the deforming factors acting upon the spine. The entire thoracic cage thus becomes increasingly rotated, so that the long axis is no longer transverse in the frontal plane, but lies obliquely. The lung on the side of the convexity becomes compressed, while on the opposite side it may become hypertrophic and emphysematous. The heart is displaced laterally towards the convexity of the curve, as are the aorta and perhaps the esophagus. Due to abnormal pressure the intestines are crowded low in the abdomen, and other organs are frequently displaced or misshapen by the changes evident in the thorax.

The position of the pelvis depends much upon the shape of the 5th lumbar vertebra. If the lower contour of this vertebra is horizontal, the pelvis stands horizontal, but if it is oblique, then an obliquity of the pelvis will be observed.

The soft structures of the spinal column, ligaments and muscles adapt themselves to the morphological changes of the spine. The anterior longitudinal ligament is thinned out on the convex side and shifted over to the concave side of the vertebral body. The posterior longitudinal ligament is displaced in an opposite direction. The muscles of the back become atrophic and weak, and undergo fatty degeneration. On the concave side, contractures often occur, and constitute a formidable obstacle to correction.

DIFFERENTIAL DIAGNOSIS

There can be little risk of mistaking scoliosis for Pott's disease, since the rigidity, deformity and localized pain of the latter are so characteristic; in the more severe cases of scoliosis, however, where there is a projection of the spinous processes backwards, Pott's disease should be ruled out only after intensive investigation. Subjective symptoms such as neuralgic pain and weakness are often present in scoliosis, but usually they are not very prominent features.

TREATMENT

The most important factor in the management of scoliosis is its early recognition. Unfortunately, it is very frequently overlooked until quite severe. Every child, especially between the ages of 6 to 16, should have a quick routine spine examination at least every six months. Especially in following polio cases is it important to watch the spine as well as the extremities. Even a mild curve is hard to miss if one looks at the back with the patient standing, then bending forward. And once recognized, each scoliotic patient must be considered as an individual problem.

There are three basic approaches to the treatment of scoliosis:

(1) Correction of the curve itself by applying measures designed directly to reduce the lateral angulation and the rotation.

(2) Techniques aimed at developing contralateral countercurves below or above the original one, so as to offset the effect of lateral and rotary deflection.

(3) Preventing progression of the deformity by adopting measures which will ensure that the corrections or compensations of the curve are maintained. This is accomplished by systematic development of the back muscles so that active equilibrium can be maintained, or else, if such equilibrium cannot be maintained by the muscular action, it is accomplished by abolishing all motion in the vertebral junction, that is, by opera-

tions devised to stiffen the spine. Method (2) is often necessary in order to obtain a satisfactory fusion of the vertebrae. A spine which has been realigned by development of countercurves holds more easily after fusion than a spine with marked disalignment. In the latter cases, the fusion often breaks, and pseudoarthrosis develops.

The conservative, so-called compensation-derotation, treatment for scoliosis consists of mobilization, exercises and massage, and part-time wearing of a brace. Exercises improve the muscle tone, vital capacity, appearance, posture and health, but do not alter the course of the progress of the scoliotic curve. Conservative treatment should be continued until growth of the spine has ceased, which is about the age of 16 or 17 years in girls. Light and moderate cases of idiopathic or habitual scoliosis or mild rachitic cases can be brought to full control under this treatment, but only a few congenital and practically none of the paralytic type can be so controlled. Careful observation and follow-up, including adequate X-ray films (standing and sitting positions) at least every 3 months, with precise measurement of the curves and charting of X-ray progress, are most important.

When it appears that results cannot be obtained by compensation-derotation methods, one is at liberty to use more forcible means of correction, which is done by application of one of a variety of corrective casts. Description of these is beyond the scope of this paper.

It should be realized that in the great majority of cases the original curve is so resistant that any attempt at correction, be it by manipulation or cast, results only in the development of countercurves. It would take considerable force actually to change the angulation of the curve itself.

It will then appear that when a compensatory correction is accomplished by corrective cast, this can rarely be maintained by active muscle balance alone; in time the spine becomes so unstable that progression of the deformity is inevitable. It therefore becomes necessary in nearly all these cases to secure the spine by a fusion operation.

In considering the indications for operation, the following factors should be evaluated: the etiology of the scoliosis, age of the patient, cosmetic appearance, pattern, location, extent and rate of progression of the increase in the curve or curves, degree of instability, and finally the status of the patient, physical, mental and economic.

Generally speaking, stabilization is more important than cosmetic improvement in post-polio scoliosis, but usually not in idiopathic cases. The greater the muscle imbalance, the more need for a massive fusion mass, and if necessary, bone from a bone bank should be obtained. Surgical relief is most essential in those cases with marked dorso-lumbar curves with severe pelvic tilts, where the ribs are in the pelvis, the viscera displaced, and the ureters kinked, with subsequent hydronephrosis and renal infection.

The object of the operation in scoliosis, then, is to provide greater stability of the spine by fusion of the vertebrae, and thus prevent or minimize further collapse, with associated deformity.

Briefly, the operative procedure involves fusion by bone bridges and chips. Reaming out of the intervertebral articulations is followed by the implantation of a great amount of cancellous

bone, best taken from the crests of the os ilii. Because of the lengthy portion of the spine selected for fusion in most instances, and to prevent post-operative shock, fusion is usually performed in two or three stages, with an allowance of a three-week interval between each procedure. The post-operative course is long, and requires close observation, the details of which cannot be dealt with here.

Certain types of scoliosis, of course, are treated by attacking the cause of the trouble; e.g. rickets is combatted by means of hygiene and diet, while inequality of the legs needs correction. Idiopathic and post-polio scoliosis together account for over 90 per cent of all cases, and it is essentially the treatment of these types that has been described.

In conclusion, scoliosis is a serious condition that may lead to irreversible structural changes in the spine, capable of producing profound derangement of the internal organs. Its early recognition and timely prophylactic treatment, particularly surgical intervention when indicated, can do much to lessen and postpone the grotesque deformities of advanced scoliosis.

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Worry affects the circulation, the heart, the glands, the whole nervous system. I have never known a man who died from overwork but many who died from worry.
DR. CHARLES MAYO

A PROBLEM IN DIAGNOSIS

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PRESENTATION OF CASE

A.B., a 42 year old married woman, was admitted to the Toronto General Hospital on November 15th, 1951. Her presenting symptoms were dysuria, frequency and fever of three weeks duration and a history of anorexia with a loss of 15 pounds during the same period.

Her recent episode of illness had started on October 25th, 1951, with a sudden onset of left lumbar pain associated with frequency and dysuria. She developed a high fever and chills and was admitted to the South Porcupine Hospital where intravenous therapy was given. She was discharged on November 8th, and referred to the Toronto General Hospital.

There was no significant past history prior to 1933. She had started to menstruate at the age of 14, had continued regularly with a 30 day cycle, and each period was of 7 days duration with moderate flow and no pain, until 1933 when she was 24 years old. In 1932 she went through her only pregnancy and was delivered, without complications of a normal child. She described the onset of severe dysmenorrhea in 1933 and within a few years she started to have intermenstrual pains which were severe enough to keep her in bed for weeks at a time. Then in 1940, laparotomy indicated a diagnosis of endometriosis (presumably of one ovary) and a partial oophorectomy was carried out. Thereafter her dysmenorrhea stopped but she continued to have frequent attacks of severe lower abdominal "toothachey" pain together with nausea and fever which were not related to her periods. She also complained of severe lower lumbar backaches. In early 1946 she had three such attacks, each lasting about one week. A pelvic "tumour" was drained of a pus-like material for 5 months from February until July, 1946, when the lesion healed completely. In late 1946 this patient began to have attacks of dysuria, frequency, and almost constant aching pain in the left costo-vertebral angle. These symptoms became aggravated with time and during one attack in 1950 blood appeared in her urine. Since 1950, her periods came every 2 weeks and lasted 7 days with a heavy flow each time; there has also been a slight bloody intermenstrual discharge on many occasions.

On admission, the patient was a thin, pale woman who gave the impression of chronic illness. The head and neck, respiratory and cardiovascular systems were found to be essentially normal; the blood pressure was 125/90. There were two laparotomy scars on the lower abdomen —one in the midline and the other in the right lower quadrant above and parallel to the inguinal ligament. The former was presumably made for the partial oophorectomy in 1940 and the latter for the drainage of the pelvic abscess in 1946. A mass was palpable above the right pubic tubercle. There was marked left costo-vertebral tenderness. Pelvic examination revealed a parous introitus; the cervix was firm, grossly

hypertrophied, cystic in appearance, pointed downwards and backwards, and was deviated to the right; there was a profuse, thin white, cervical discharge. On bimanual examination the uterus was firm, somewhat tender, and enlarged to about the size of a 6 weeks' pregnancy; it was anteverted and deviated to the left by the pelvic mass. The mass felt abdominally was now more clearly defined as about 12 cm. in diameter, adherent to the right cornu of the uterus, not attached to skin or surface tissues, irregular in outline, firm, non-tender, non-fluctuant, and somewhat movable with the uterus as a unit. The left adnexa was clear to palpation.

Laboratory examination on admission showed the presence of some pus cells, the occasional red blood cell, but no casts in the urinary sediment. The hemoglobin value was 75% and the white blood count was 9000. The sedimentation rate was 64 mm./hour. The serology was normal. Bacteriological investigation of the vaginal discharge gave no evidence of Neisserian infection. The chest X-ray was normal.

Because of the presenting symptoms, a genito-urinary consultation was thought advisable. Cystoscopic examination revealed a red bladder mucosa with prominent vessels but no ulceration. Ureteral catheters were passed and then indigo carmine injected into the cubital vein. The dye was exreted from both kidneys in the normal time of 2½ minutes. The ureteral catheter urines and the bladder urine, all later showed no bacterial growth. Retrograde pyelography showed no significant pathology. The flat plate disclosed no metastatic tumour involvement of the lumbar spine.

SUMMARY

The case of a 42 year old woman with a history of varying abdominal and pelvic symptoms during the past 18 years is presented. Dysmenorrhea starting in 1933 was relieved by partial oophorectomy in 1940 when an area of endometriosis was removed. Severe lower abdominal aching pain and severe lower backache became the prominent symptoms and led to the drainage of a pelvic abscess for five months in 1946. In the same year she began to have attacks of dysuria, frequency and left costo-vertebral pain which eventually led to her recent hospitalization. Since 1950 she gives evidence of polymenorrhea, menorrhagia and slight metrorrhagia. Examination revealed a thin, pale, chronically ill woman who had lost fifteen pounds in the preceding three weeks. A firm nodular mass adherent to the right uterine cornu has been described. Laboratory evidence of inflammatory processes consists of the finding of some pus cells in the urine, a white blood count of 9000 (upper limit of normal) and a sedimentation rate of 64 mm/hour (normal 20). A complete genito-urinary investigation has only revealed a congested bladder mucosa. Urinary bacteriologic studies were all negative.

DIFFERENTIAL DIAGNOSIS

To establish a diagnosis one must consider the urinary symptoms, the disturbances of menstruation, the long period of involuntary sterility, and the pelvic mass. Indeed more than one diagnosis may be necessary to describe the entire picture. Let us consider:—

1. Chronic Pelvic Inflammatory Disease with Right Tubo-Ovarian Mass.

2. Pelvic Endometriosis with Right Chocolate Cyst.
3. Uterine Fibroids.
4. Right Ovarian Tumour.
5. Left Chronic Pyelonephritis with Cystitis.

Cystitis may be suggested by the urinary frequency, dysuria, the finding of pus in the urinary sediment as well as the cystoscopic evidence of a congested bladder mucosa. However no bacterial etiology has been established and all these symptoms may be explained as due to pressure and irritation by an inflamed extracystic mass.

Left Chronic Pyelonephritis could conceivably be the cause of left costovertebral tenderness but in view of the absence of bacteria, albumen, casts and gross pus in the urine as well as a negative detailed investigation of ureteral patency and kidney function, we can eliminate this diagnosis.

Uterine Fibroid is a strong contender for the primary diagnosis. Its presence could explain the mass and the bladder pressure symptoms. Polymenorrhea and menorrhagia are not infrequently symptoms of uterine fibroids especially of the submucous or interstitial variety. Pain, though often present, is not characteristic of fibroids. The sudden onset of pain in this patient could conceivably be related to a circulatory disturbance, with local necrosis, or with inflammatory change and adhesions to neighboring pelvic structures. Such an occurrence could account also for the increased sedimentation rate and the high normal white blood count.

Ovarian Tumour is a possibility which cannot be ruled out, but it is unlikely that any such neoplasm could account for all of the symptoms and the very long history. A recent vascular accident could here also account for the onset of acute pain.

Pelvic Inflammatory Disease, the favoured diagnosis, was suggested by the previous history of drainage of a pelvic abscess in 1946. In addition her recent illness started with a high fever and chills which however could also be explained by the sudden expulsion of some blood into the peritoneal cavity as well as by a vascular accident in some pelvic mass. During her recent admission to hospital her temperature remained remarkably steady and normal for 7 days prior to operation. This diagnosis could easily explain her long period of involuntary sterility. The disturbances of menstruation may be attributed to inflammatory ovarian involvement.

Endometriosis must be considered because of its discovery in 1940 at laparotomy; it is possible that other lesions present were not excised, or that it recurred. Sterility is said to occur in 75% of these people, although the tubes may be patent and the reason not always evident. Ectopic endometrial tissue can cause dysmenorrhea. Involvement of the ovaries with resultant dysfunction could account for the disturbances of menstruation such as menorrhagia, polymenorrhea and metrorrhagia. The pelvic pain and pelvic mass can be attributed to the bleeding areas of endometriosis with resultant chocolate cyst formation and irritation of peritoneum leading to inflammation and fibrosis. The bladder pressure and irritative symptoms as well as the recent acute episode of dysuria, frequency, fever and chills could be easily explained by bladder involvement. It must be remembered that there are no characteristic symptoms of endometriosis and it is often diagnosed by exclusion.

LAPAROTOMY

This was performed on November 22nd, 1951. The pelvis was found to be the site of a mass of adhesions including small bowel, large bowel and omentum. The Pouch of Douglas was studded with dark chocolate nodules. The abdominally palpated mass consisted of large brownish and greenish masses intimately adherent to the right adnexa and the adjacent uterus. Total hysterectomy and bilateral salpingo-oophorectomy were performed. There was no involvement of the bladder or ureters and the acute urinary symptoms remain unexplained.

PATHOLOGICAL DIAGNOSIS

Endometriosis of uterus, left tube and both adnexae. The right adnexal mass consisted of old and recent organized hemorrhage, necrotic tissue and fatty tissue.

POSTOPERATIVE COURSE

The patient did exceedingly well, was ambulant early and was discharged as cured on her 15th postoperative day.

ACKNOWLEDGEMENTS

The writer wishes to thank Dr. W. Paul for his many helpful suggestions during the preparation of this report, and Professor Cannell for reading the final draft.

REPRIS: WHAT IS YOUR DIAGNOSIS, DOCTOR?

In response to numerous requests, we present once again a quiz that tests the diagnostic acumen of students in the clinical years. To make the junior clinical medsmen more content with their lot, the present quiz is divided into three parts, ten problems in each. Students from second medical year are expected to answer most of those in the first group; members of third meds, the majority of questions in the first two groups; and the senior students, as many as they can of the three sections.

I	II	III
1. Barrel-chest	11. Swiss-cheese hyperplasia	21. Osler's nodes
2. Large white kidney	12. Heberden's nodes	22. "String sign" (X-ray)
3. Malignant pustule	13. Target cells	23. Worm-eaten skull
4. Negri bodies	14. Pipestem colon	24. Couvellaire uterus
5. Wire-loop capillaries	15. Pistol-shot sound	25. Pott's puffy tumour
6. Pipestem arteries	16. Koplik's spots	26. Buffalo type obesity
7. Black cardiac	17. Signet-ring cells	27. Peau d'orange
8. Charcot's joint	18. Ribbon stools	28. Rose spots
9. Bread and butter	19. Strawberry tongue	29. Pardee curve
10. Woody thyroiditis	20. Chocolate cysts	30. "Sun ray" (X-ray)

Answers on page 226

A SURVEY OF CASES CONCERNING THE LIABILITY FOR SURGICAL TRESPASS

E. R. PEPPER, B.A.*

THE INTRODUCTION of anesthetics into the practice of surgery has brought with it a new line of cases in "surgical trespass". By the term "surgical trespass," the writer means the performance of an operation on a patient without the consent of the patient to the operation so performed. In all these cases the problem appears to be, to reconcile the rights of personal security with the duties of the medical profession to protect human life.

Generally speaking, a person has a right to absolute inviolability of his own body. For any violation of this rule, unless some general exception is held to apply to the case, the person against whose body any force is exercised has a right of action in trespass against the person applying the force. It is the writer's contention that an operation by a doctor on the body of the patient will, in certain cases which he will define, fall under a general exception to this rule, and hence will not constitute a trespass against the patient.

The law has always tried to protect the doctor in the performance of his duties. It recognizes his great service to society and does not wish to discourage him in his high ideals by enforcing harsh laws which prevent him from carrying out his duties of saving lives and preserving health. The present article deals with the circumstances in which the law protects the surgeon who has technically committed a "surgical trespass."

The older view was that the "consent doctrine" should be applied to this branch of the law and there was not recognized a fundamental difference between the type of case where consent could reasonably be obtained from the patient and the type where it was reasonably impossible to obtain such consent. The application of this "consent doctrine" in cases of the latter type could only have been based on a fiction, and it is interesting to see how the Courts found excuses for implying a consent on the part of the patient where there was not the slightest evidence to justify such an inference.

However, in more recent cases the more sensible view is taken that the employment of anesthetics renders the patient unable to consent at the very time that the common law required that his consent be obtained and that in certain cases the "consent doctrine" is definitely inapplicable and some more reasonable grounds must be found upon which to base the decisions. The most acceptable view suggested is that the surgeon may be justified on the higher ground of duty. Just how far the application of this new doctrine will extend upon the interpretation and effect of the judgment of the Supreme Court of Nova Scotia in the case of Marshall *v.* Curry (1933) 3 Dominion Law Reports p. 200. This is the leading case on the

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subject of surgical trespass. In it are discussed the most important English, American and Canadian decisions, the limits of the consent doctrine are defined, and the modern and more reasonable rule is set out.

The facts are briefly as follows:

The plaintiff had consented to an operation for hernia, not realizing that this entailed the removal of one of his testicles. When the surgeon, defendant, had placed him under the anesthetic, he found that it was necessary for the patient's health to remove the testicle. Accordingly the testicle was removed and the plaintiff brought an action of trespass against the defendant.

It was held that the surgeon had not committed a trespass against the patient. After an examination of all the authorities Chief Justice Chisholm based his opinion on the necessity of protecting a doctor in the honest execution of his duty.

The actual reason for the decision of this case can be set out in two concise statements;

1. "If the consent of the patient can reasonably be obtained, then any operation performed by the surgeon without first obtaining this consent will constitute a trespass." In such cases it is only reasonable that the "consent doctrine" should apply.

2. "If the consent of the patient cannot reasonably be obtained, then a surgeon is justified in taking whatever steps are reasonably necessary to save the life or preserve the health of the patient." Here any considerations of consent are purely fictitious.

It is the latter of these propositions which concerns us.

In deducing these propositions, Chisholm, C. J.,** first examines the English law and is unable to find any cases which are the least bit helpful. Beatty *v.* Cullingworth (1896), reported in the British Medical Journal, November 21st, 1896, is interesting for two reasons, first because the facts show that the patient had expressly instructed the surgeon not to remove certain organs; and secondly, in that it shows to what extremes the Courts will go in finding a defence for the surgeon. In this case the "consent doctrine" is stretched to an absurdity in finding, on the facts given, a tacit consent of the patient.

He then turns to the American law, finding there many decisions which are most useful. However, most of these cases are decided on the basis of the "consent doctrine", and for that reason he disapproves of them.

In Pratt *v.* Davis (1906), 224, Illinois Reports p. 300, Scott, C. J., lays down the American law,—"Where the patient desires or consents that an operation be performed and unexpected conditions arise or are discovered in the course of the operation, it is the duty of the surgeon in dealing with these conditions, to act on his own discretion, making the highest use of his skill and ability to meet the exigencies which confront him and in the nature of things he must frequently do this without consultation or conference with anyone. . . . Emergencies arise, and when a surgeon is called, it is sometimes found that some action must be taken immediately for the preservation of the life or health of the patient, where it is impracticable to obtain the consent of the ailing or injured one or anyone authorized to speak for him. In such event, the surgeon may lawfully, and it is his duty to per-

**Hereafter, the initials C. J. will be used to denote "Chief Justice".

form such operation as good surgery demands without consent."

However, in this case it was thought that in such situations there was an "implied licence" on the part of the surgeon who operates. This Chisholm C. J., thought unreasonable.

He disapproved, too, of the principle propounded in the case of Berman *v.* Parsonnet (1913), New Jersey, that the surgeon is the representative of the patient to give consent.

Coming to the Canadian law, Chisholm C. J., finds two Quebec cases which he considers are correct statements of what the law should be. In Parnell *v.* Springle (1899) Quebec, it was held by Mr. Justice Curant that when a minor operation was consented to, and later, when the patient was under the anesthetic, it was found absolutely necessary for the preservation of the patient's life that certain organs be removed, the surgeon acted legally and with prudence and was in duty bound in the circumstances to perform the major operation in order to preserve the life of his patient.

In Caron *v.* Gagnon, 1930, 68 Quebec Supreme Court Reports p. 155, Chief Justice Sir Francois Lemieux held that if the removal of the organs was for the welfare of the patient, the surgeon was not liable in an action for damages.

In summing up, Chisholm C. J., referring to the unreality of the "representative view" of some of the American cases, says, at page 274, "I think it is better instead of resorting to a fiction to put consent altogether out of the case, where a great emergency, which could not be anticipated, arises and to rule it is the surgeon's duty to act in order to save the life or preserve the health of the patient; and that in the honest execution of that duty, he should not be exposed to legal liability. . . . It is, I think, more in conformity with the facts and with reason, to put a surgeon's justification in such cases on the higher ground of duty as was done in the Quebec cases."

Again, at page 275, he says . . . "Is it not better to decide boldly that apart from any consent, the conditions discovered make it imperative on the part of the surgeon to operate, and if he performs his duty skilfully and with due prudence, that no action will lie against him for doing so."

Has this abandonment of the "consent doctrine" and the adoption of a "duty doctrine" fundamentally changed the law, and is it consistent with the older law as set out in Halsbury's Laws of England, pp. 332-3:

"When during an operation a practitioner forms an opinion that it is necessary, in order to save the patient's life, to remove some organ or limb, and accordingly removes the organ or limb . . the practitioner cannot be charged with negligence for having taken that step, unless there is evidence that the express instructions were given by the patient that no organ or limb should be so removed, and that the operation was performed negligently, and it is for the jury to consider whether such instructions were communicated or not."

In order that we may comprehend more clearly the effect of the doctrine, let us examine how it would apply to the following three cases:

(a) The patient places himself in the hands of the surgeon and says: "Remove my appendix." When the patient is under the anesthetic, the surgeon finds that unless he immediately removes the gall bladder of the patient, the life or health of the patient will be endangered.

(b) The patient, knowing his appendix must be removed, but not knowing that he is suffering from another ailment, says to the surgeon: "Remove my appendix and nothing else." The surgeon removes the gall bladder in order to save the life or preserve the health of the patient.

(c) The patient, knowing that, in addition to having acute appendicitis, he also has a diseased glall bladder, says to the surgeon: "Remove my appendix, but do not remove my gall bladder." The surgeon removes both to preserve the health or save the life of the patient.

The facts of the first case are similar to those of Marshall *v.* Curry, and since that decision, there is no doubt that the surgeon would be justified in performing the operation.

It is more difficult to justify the surgeon's actions in the second case, and in order to do so, a rather nice distinction must be drawn between (b) and (c). In (b) the patient does not contemplate that his condition is any more serious than a simple case of appendicitis. Therefore, the instructions which he gives to the surgeon should have application only to the circumstances under which they were given. Probably if he had been able to give his consent to the gall bladder operation, he would have agreed to it. But he is unconscious and the matter cannot be referred to him for decision. The original denial of consent in such circumstances cannot be real, since all the facts were not before the patient. In such a situation the writer submits that the consent doctrine can have no application, and, therefore, the rule in Marshall *v.* Curry will apply to exonerate the surgeon, provided he treated the patient reasonably and skilfully. He would be performing his duty under the circumstances in saving the patient's life.

Example (c) takes us one step farther and makes the position of the surgeon even more shaky. In contrast to (b), here the patient in issuing instructions, has all the facts before him and he contemplates that it may be necessary to remove his gall bladder as well as his appendix.

The facts in the case of Mulloy *v.* Hop Sang (1935), an Alberta case, are quite similar to these. Here the patient asked the surgeon to relieve the pain in his hand so that he could see his own doctor, but expressly ordered him not to amputate it. When the patient was under the anesthetic, the surgeon found it necessary to remove the hand and did so. The patient recovered substantial damages from the surgeon for trespass.

It will be seen that in this case the removal of the hand was found by medical evidence to be necessary. It does not specify why it was necessary; whether it was necessary to save the patient's life or necessary to preserve his health. It is submitted that from the facts of the case, the proper interpretation of the word "necessary" is that "the hand would have to be removed sooner or later in any event, though not necessarily before the patient could see his own doctor." In which case we have an authority for the proposition that if the patient gives real and specific instructions to the surgeon not to operate, the surgeon will be guilty of trespass if he goes ahead and performs the operation because the operation would have to be performed in the very near future anyway, though not before the consent of the patient could be obtained nor before

he could consult his own medical adviser.

The writer submits that this case is one to which the "consent doctrine" could apply, as there was no emergency and the patient could have been allowed to recover consciousness without his health or life being endangered.

This leaves undecided the question as to whether the surgeon would be guilty of trespass if in an emergency the operation was found necessary to preserve the health of the patient, or stronger still, to save his life.

In Kinkead on Torts (an American text) the general rule on this subject is stated as follows: "The patient must be the final arbiter as to whether he shall take his chances with the operation, or take his chances of living without it. Such is the natural right of the individual, which the law recognizes as a legal one."

It would seem, then, by the rule of law in force before Marshall *v.* Curry, that in example (c) the surgeon could be held liable. But applying the "duty doctrine" to this case—is not the duty of the surgeon to preserve health and save life? Would it be ethical for the surgeon to stand by and watch his patient die when by disobeying his instructions, he could save the patient's life?

As yet, the Court has not been called upon to decide this question, but it is submitted that in the light of Marshall *v.* Curry, the only reasonable solution to the problem would be to hold the surgeon not liable.

"LIVING IN"

At the Western, on the 4th floor,
While the world was all asleep,
Sat a student with a patient,
And his yawns were loud and deep.

Suddenly he started wildly,
"Call the students out of bed,
Bring the junior in a hurry
Here's the top of baby's head!

"Call the nurses, call them quickly,
Get the internes out of bed,
Here's the baby, come and get it,
Or you'll find it in the bed!

"Pressure, Pressure, get the stretcher!
Membranes ruptured an hour ago,
Put her under with the ether,
To the case-room she must go."

Sterile towels, rubber gloves,
Draped the patient just in time.
Sleepy interne to the reseue,
Gets scrubbed up all fit to shine.

Said the Senior, roused from slumber,
"Give her ether with each pain—
Just bear down a little harder,
Or we'll be up all night again!"

"Oh, my God! Here comes the baby!"
Cried the student with great joy,
"Slap its back and get it crying,
Wupper Dupper! It's a boy!"

Expressed placenta, fuss all over,
And the world again asleep,
Sat the student—holding fundus,
And his yawns were loud and deep.

Anonymous Medette (Epistaxis, '38)

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EDITORIALS

THE STUDENT IS A TARGET

NOT LONG AGO, a certain misguided member of a veteran's group denounced the local DVA hospital as a veritable chamber of horrors in which the unfortunate patients had to submit to the inept fumbling of University of Toronto Medical students. Amazingly enough, the story was accepted as true by so many people that a Commission was about to be set up to investigate when the gentleman withdrew all his charges.

About the same time, letters began to appear in the daily press from certain patients in the public wards of Toronto hospitals expressing their dislike of the methods of the medical students who had been examining them on the wards.

These two episodes indicate how certain elements of the population regard the student of Medicine, and how easy it is for him to become the target of public outcry if his handling of even one case is grossly inept. Fortunately, most laymen realize that ward experience is necessary in the training of a physician, and accept it without question; it is only a small minority, albeit a very voluble one, that creates disturbances and ill-feelings whenever anyone steps even slightly out of line. Medical students must be aware of this latter group, however, and should avoid creating the setting for its outcries.

There are a number of things that medical students do around the wards that create ill-feeling. They are too noisy; often as they assemble in the corridor awaiting their clinician, they set up a clamour that reverberates through the entire ward, increasing in volume

with the arrival of every latecomer. Again, students tend to become oblivious to the feelings of their patients; they have a tendency to regard them merely as "chests" to be repeatedly thumped, or "abdomens" to be unmercifully prodded. Finally, there are those students who tend to stew over certain minor irregularities that they find on physical examination; what often happens is that the patient's attention is focussed upon them and they become sources of anxiety. Iatrogenic heart disease is becoming a well-defined clinical entity; how important medical students are in its pathogenesis would make an interesting study.

As long as students are responsible for these irregularities, they will be liable to criticism, and will be made the targets of undeserved abuse by zealots who exist in every community. This is especially unfortunate because medical students generally are humane, considerate, and conscientious. If they would take it upon themselves to correct the faults of their contemporaries, there would never be any occasion for bad feeling.

THE PHILOSOPHY AND THE PRACTICE OF MEDICINE

In this issue, we have strayed a little from the technical side of Medicine and have introduced a group of features, in each one of which different emphasis is placed on the rôle and objectives of the physician.

One, written by a Professor of Philosophy at this University, emphasizes the "working philosophy" that a physician should carry with him into his everyday practice. The second feature, written by a recent graduate pioneering in Saskatchewan, drives home a more materialistic approach: work hard, gain experience, and take Life as it comes. The final article, acting, in a way, as the mean between the other two, describes in detail the life of the great doctor-philosopher, Albert Schweitzer. Like our young doctor, he exhibits the attributes of the pioneer; nevertheless he remains a philosopher, and indeed has his credo strengthened by the work he does.

The Editorial Board of the Journal commends these features to the undergraduates, and especially to the pre-medical students.

MEDICAL JOURNALISTS' CONFERENCE

Several weeks ago, a conference of medical editors, sponsored by the Ontario Medical Association, was held in Toronto. Among the many prominent medical journalists present were the editors of the Journals of the American and Canadian Medical Associations. These senior editors discussed many of the problems facing medical journalism today: the rising costs of printing, the difficulty in selecting articles of interest to all readers, the multiplicity of journals that threatens to swamp the practitioner, the types of advertising that should be rejected, and many other topics.

What was not discussed, however, and for which a group of undergraduate medical editors waited expectantly throughout the sessions, was the place of the university medical journal in the overall scheme of medical journalism. Is the undergraduate journal regarded by its sophisticated contemporaries merely as a collegiate plaything channeling off the exuberance of certain medical students; or is it regarded by them as fulfilling a higher purpose as the training ground for future medical authors and journalists?

We were sorry that this question was not discussed at the otherwise very fruitful conference. We hope that it will be at the next.

PHILOSOPHY AND THE PHYSICIAN

T. A. GOUDGE*

PHILOSOPHY AND MEDICINE seem at first glance to be subjects so remote from each other that any connection between them is purely coincidental. People sometimes express surprise that courses of philosophy are offered on the premedical curriculum of Canadian universities. Even premedical students may wonder what relation such courses have to their ultimate professional objectives! Yet it is not difficult to put forward a case on behalf of these courses. For they have, as I shall try briefly to show, a significant contribution to make to a prospective physician's career.

It will be convenient to discuss this question in terms of two sets of distinctions. The first is the distinction between what I shall call "medical training" and "medical education." Medical training I take to be the process by which an individual becomes a skilled practitioner of medicine or of some specialized branch of medicine, such as surgery, pediatrics, gynecology, etc. Medical education I take to be the more general process by which an individual becomes a mature, cultivated personality whose professional activities are part of a larger pattern of life. The other set of distinctions, to be explained in greater detail below, has to do with the two main branches of philosophy. These will be referred to as "critical philosophy" and "synoptic philosophy" respectively. The gist of what I wish to say may now be put thus: critical philosophy can contribute significantly to medical training, and synoptic philosophy can contribute significantly to medical education.

*Professor of Philosophy, University of Toronto.

I.

Critical Philosophy and Medical Training. A major task of critical philosophy is to subject to logical analysis the basic concepts and assumptions which occur in the discourse of the natural sciences and in the non-scientific talk of ordinary life about such things as politics, morals, art, religion, etc. Typical examples of basic concepts are: "cause," "evolution," "freedom," "democracy," "God." Typical examples of basic assumptions are: "Everything has a cause," "Evolution is a fact," "Democracy is the best type of government." Now an obvious feature of these expressions is that they are essentially vague and ambiguous. They mean many different things to different people. Yet because they express important ideas, it is desirable that their ambiguity and vagueness be reduced to a minimum. This is the task which critical philosophy undertakes. It seeks by logical analysis to make these expressions as clear and definite as possible. Much of its attention is therefore devoted to the various linguistic forms in which the expressions occur, and it strives to replace obscure and "woolly" formulations by precise and lucid ones. That this task is difficult will not be disputed—certainly not by a philosopher! But its importance and value are patent.

Another aspect of critical philosophy is the discipline of logic. Logic studies

the principles which determine the correctness or validity of reasoning, and enables us to distinguish good from bad arguments. These principles apply both to exact reasoning and to probable reasoning. They make up a body of knowledge having great intrinsic interest and considerable usefulness, since all the conclusions drawn in the sciences and in daily life must, if they are to be acceptable, conform to logical principles. Some acquaintance with these principles is therefore likely to be an aid to thinking correctly.

Now it may be taken for granted that a trained physician should possess well-developed powers of analysis and reasoning. His professional activities require these powers to be constantly in operation. Upon their incisiveness and accuracy matters of life or death may depend. It is here that critical philosophy will be a beneficial influence if it has encouraged in the student habits of intellectual penetration, lucidity of expression, and precision of thought. Indeed, critical philosophy can prove valuable in helping to advance the cause of medical science. For the disposition to subject basic concepts and assumptions of the science to a searching scrutiny may lead to the conclusion that they need to be revised, or perhaps replaced by others. The history of medicine contains many examples of ideas which, because they were outmoded, blocked the path of progress until some adventurous mind undertook to analyse them. And, of course, ideas that are solidly grounded have nothing to fear from such analysis. Thus the central contribution of critical philosophy to medical training might be summed up in the words of St. Paul: "Prove all things; hold fast that which is good."

II.

Synoptic Philosophy and Medical Education. The task of synoptic philosophy is not easy to state in a few words. This is partly because philosophers themselves disagree about it, and sometimes even question its legitimacy. But one of its aspects may be said to be the search for a comprehensive understanding of man, and of his place and prospects in the universe.

In pursuing this objective, synoptic philosophy has to bring under review the relevant evidence. It must, therefore, understand at least in outline the "world-picture" of contemporary science. That is to say, it must study the most general conclusions reached by physics, biology, psychology, etc. No conception of man which ignores or rejects these conclusions can possibly be true. Synoptic philosophy must also take into account the non-scientific features of human experience. It must give due weight to the fact that man is a being who creates and enjoys the arts, who guides his life by moral and religious beliefs, etc. The data of aesthetic, ethical, and religious experience can no more be rejected or ignored than the conclusions of the sciences. Finally, synoptic philosophy must pay heed to what the great minds of the past have had to say about man and his place in nature. For wisdom on this subject is by no means an exclusive monopoly of the present.

With the evidence before it, synoptic philosophy endeavours to form a unified conception of man. Recognizing the complexity of the task, it does not profess to be able to reach an absolutely conclusive result. Much must be left to individual judgment, and individuals will certainly differ in the conception of man which they personally find accept-

able. All synoptic philosophy can do is to insist that they should survey the evidence impartially, assess it rationally, and be tolerant of disagreement. The final court of appeal here can only be human reason inspired by the love of truth.

Some acquaintance with this enterprise can surely be of benefit to a medical student. For since his professional career is to be devoted to promoting the bodily welfare of man, he will inevitably seek to understand in wider terms the strange, many-sided being to whom he ministers. Confronted daily with the facts of birth and death, of pain, suffering, and frustration, the physician can hardly avoid asking fundamental questions about the value and purpose of human life. Such questions have led the masters of medicine, from Hippocrates to Osler, to combine their technical knowledge with a "working philosophy." No doubt every mature physician finds it necessary to do this. If so, the study of synoptic philosophy should prove to be valuable to him. For it not only presents the material which a tenable working philosophy must include and shows the ways in which this material can be brought into a synthesis, but by stimulating reflection on ultimate questions it also gives breadth of outlook and depth of understanding. These are things that must always be of supreme importance to a cultivated mind.

More remains to be said on this whole subject, since in a brief discussion only a few points can be dealt with and some over-simplification is unavoidable. But perhaps I have succeeded in suggesting certain reasons why the study of philosophy by the prospective physician can be time well spent.

ANSWERS TO "WHAT IS YOUR DIAGNOSIS, DOCTOR?" (PAGE 216)

I	II	III
1. Emphysema	11. Endometrial hyperplasia	21. Subacute bacterial endocarditis
2. Nephrosis	12. Osteoarthritis	22. Regional ileitis
3. Anthrax	13. Cooley's anemia	23. Tertiary Lues
4. Rabies	14. Chronic ulcerative colitis	24. Accidental hemorrhage
5. Disseminated Lupus Erythematosus	15. Aortic regurgitation	25. Extradural abscess
6. Monckeberg's sclerosis	16. Measles	26. Cushing's disease
7. Ayerza's disease	17. Krukenberg tumour	27. Carcinoma of breast.
8. Tertiary Lues; Syringomyelia	18. Stenosing carcinoma of the rectum	28. Typhoid fever
9. Fibrinous pericarditis	19. Scarlet fever	29. Myocardial infarction
10. Reidel's struma	20. Endometriosis	30. Osteogenic sarcoma

RURAL PRACTICE FOR A RECENT GRADUATE

SAMUEL WOLFE, M.D., 5T0*

During the past few years, most of the specialists and some of the general practitioners have been extolling the virtues of rural practice, hence I thought that it might be of some slight interest to recount a few experiences of my first six months in practice in northern Saskatchewan. This might also be entitled "Quick, dear, where's my copy of Emergency Surgery?"

What are the initial requirements, so that one may embark on the adventures of rural GPing? First of all, a rotating interneship where one has had the opportunity to do enough of all the routine procedures, so that self-confidence is established. Secondly, a pen is required, so that one may write to friends, relatives, and chance acquaintances (bottles of liquor to the bank manager are of value!), and borrow enough money to finance a car, furniture and basic medical equipment. Thirdly, a wife who can do Xray and Lab work, blood group twenty-five people in the middle of the night and look after the house and baby at the same time. Then, equipped with the foregoing, all is in readiness for the great adventure to begin.

The locale? A village of four hundred, three hundred miles north of Regina, nearest doctor forty miles east and sixty-five miles west. A brand new, well equipped hospital, with ten adult beds, three cribs and four bassinets. A surrounding area of one village and three other hamlets, as well as a farming area (wheat and alfalfa) forty miles across and with a total population of about twenty-five hundred. Chief activities? Crop discussions, weather discussions, curling and procreating. Latter should be listed first.

What can one write that will be interesting? I shall merely mention the number of cuts, sprains, bruises, and high school girls a week late with their menses, in passing, and write more about the bizarre, the less common, the two A.M., cases.

OBS. and GYN. are a big part of general practice. Leucorrheas of many colors are frequent, and with the use of hanging drops, gram stains, and an electrocautery, good diagnoses and good therapy are very frequent. Eagerly and with the air of an expectant father, one waits for the first protuberant abdomen to waddle into the office. It enters, in the person of a young primipara, ten days from term, in whom lightening has occured. In great detail, I do a complete functional enquiry, physical examination, and I even explain the physiology of labor and the beauties of relaxation during labor. Early the next morning, I get an urgent message "Come quick, Mrs. B. is very sick!" Tumbling instruments into my bags and myself into my car, I think of fulminating pre eclampsia and similar pleasant possibilities. Finally I arrive at the tiny home, 12 miles away. A lovely five and a half pound daughter has been born in a fifteen minute labor (the mother just thought she was going to have a bowel

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movement!) Rather sheepishly, I watch the expulsion of the placenta, give ergometrin to the mother and vitamin K to the infant, and then have a cup of tea with the family.

Not all the obstetrics is quite so simple. A forty year old comes into the office; gravida $\overline{x}$, para $\overline{ix}$, one month from term, no previous prenatal care, marked dyspnea, massive edema to the thighs, sacral pitting, râles in both lung bases, BP 220/140, albuminuaria, weight 255. There is no history of previous renal or hypertensive disease. Nevertheless, I diagnose preexistent hypertension, marked obesity, and pre eclampsia. On bed rest, phenobarb gr. $\overline{iss}$ tid, enteric NH_4Cl grains $\overline{LCX}$ a day, salt free and 1200 calorie reducing diet, response is only fair. Diastolic pressure remains over 120. On the fifth day, the patient is started on Veratrum Veridi, and gradually worked up to 80 Craw units a day with no toxic side effects. The response is fantastic and dramatic. Coupled with the other measures, BP drops to 140/90, massive diuresis occurs, state of well-being returns. Twenty eight days later, weight has dropped to 211; that night a lovely, healthy eight pound, six ounce RSA breech male is delivered. The latter occurs on a Tuesday night; on the prior two days I have a harrowing experience. A thirty-seven year old gravida iv is admitted bleeding with an eight week inevitable abortion. For a few hours, I use expectant treatment, hoping for spontaneous completion (wrongly?); hemorrhage suddenly becomes more brisk and in gushes—patient is in shock, hemoglobin in the thirties, hematocrit under 30PCV. Blood group AB Rh -ve! IV fluids are started, and we plan to start plasma and get blood. Then, horror of horrors, we discover that the patient is a Jehovah's Witness, and refuses any blood or blood product. In vain, we all plead, cajole and exhort. While my wife repeats the blood work, I jump into the car and go to tell the husband (fifteen miles away—there are no rural telephones here) of the dire possibilities. He finally persuades her to accept the blood. By now her hemoglobin is 19% Sahli, hematocrit 20% PCV. I do a cut down on the right saphenous, and start plasma. We then tie her down in bed, and do a manual dilatation and curettage. Following this I give her 500 cc of my own blood (AB+ve); the next morning we have flown up and parachuted 100 c.c. of 0 -ve blood, which we administer using Witebsky anti-A anti-B blood specific substances, and also alkaline diuretics, to minimize transfusion reactions. The patient makes an uneventful recovery and goes home still cursing the day that she permitted her sacred blood stream to be polluted, and without so much as a "thank you."

Amazingly enough, her hemorrhage saves another maternity patient's life. A 32 year old gravida $\overline{v}$ who has had a previous child with meningo-myelocoele and one abortion, is admitted in labor, with more than usual show. Pelvic rules out placenta praevia. Finally, she delivers a seven pound, ten ounce healthy male. Then the hemorrhage starts, at first slight, and then massive—IV fluids and then plasma are started—fortunately we have 500 c.c. of 0+ve blood in the frig.—I do a manual removal of the placenta (my first)—bleeding continues—BP starts to fall; systolic 130—110—90—70—nil; pulse 90—110—130 — 160 — unobtainable; patient is now unconscious—I grab a

scalpel and slash open both her ankles —we start IVs on both legs as well as the one in the arm; rightly or wrongly I give her IV adrenalin 1:1000 one C.C.; the slow IV drip speeds up; gradually she becomes conscious; in the first ten hours she receives over 5000 c.c. of IV fluids, including 1500 c.c. of blood; bleeding does not restart; she makes an uneventful recovery except for an infection in one cut down incision. On reminiscing, the hemorrhage was likely my fault; I gave her a few minims of pituitrin during the second stage—I swear never to do this again!

They say that the Lord gives new GPs their most difficult Obs. cases during their first few months in practice—this is probably true. Of my first twenty cases, ten are abnormal (using the definition that all cases other than OAs are anomalous). Three are breeches, three are ROPs, (two of which deliver as ROPs and one which finally rotates), one is a retained placenta (manual removal), two pairs of twins. In one of the latter, I make a rather obvious, foolish error—the woman comes in and she has the hugest abdomen I have ever seen—visions of Dr. Dafoe and fame flash into my cerebrum—but on Xray we see only one infant. So we assume that she has hydramnios. Then she delivers twins weighing close to fourteen pounds. Of course, I had neglected to take Xray lateral films.

For Obs. anesthesia, we use trichlorethylene (trilene), which we find is excellent, since it can also be used in late first stage, during the period of rapid dilatation. Something which was never even mentioned during medical school, and which we find very valuable, are maternity classes. At these classes, I lecture on the anatomy, physiology and happenings of pregnancy and labor; we then have a question period; followed by a demonstration of how the various muscles are used and relaxed to best advantage. We find without exception, that the interested patients have happier and shorter labors; they are told exactly what is happening every few moments, and they know the mask is available if they need it.

Pediatric cases are probably 25% of my practice; frankly speaking, sick kids scare hell out of me. Here again I get off to a bad start; my first major pediatric case ends in death. A nine month old infant is admitted, severely dehydrated, bilateral otorrhea for six days, temp. 104°. A cut down is done, fluids given both by IV and interstitially using hyaluronidase to speed absorption, all the high-priced antibiotics are used. X-rays confirm rickets. The next day the infant's temp. rises to 108°; shortly thereafter it falls to normal; suddenly the baby dies. Afterwards, one torments oneself with the thought—did I do enough? did I do right? In this case, I again learn a valuable lesson: to the relatives, be a bit pessimistic rather than too optimistic regarding prognosis; in this case, I had not stressed the seriousness enough; as a result, the parents blamed me.

Without doubt, our pediatric lectures and clinics were of more value for subsequent general practice than any other course. Many times I have seen Prof. Alan Brown's clever little face grimacing over my shoulder. One night, he even saves a life for me. An infant is brought in, moribund, head retracted, dyspneic, cyanosis on attempted neck flexion. Throat landmarks are obscured by edema. We start massive antibiotics. What is it? I know that quinsy is very

rare in infancy. Suddenly I remember—I rush into the ward and ram my finger into the infant's throat, (an infected finger reminds me for a week) and in the right retropharynx there is a huge boggy mass. It is a retro-pharyngeal abscess. That night, following the text-book orders, we stand the baby on his head, mummy him, insert a mouth gag, tape a scalpel (except for the sharp tip), and using a finger as a guide, incise into the boggy mass, and spread the incision with a curved Kelly forceps. The thick pus shoots out the nostrils, and mouth, and much is sucked into the suction machine. Immediately the color becomes pink, the infant falls asleep, and makes a good recovery. Thank you, Dr. Brown!

Another day, a text-book case of severe laryngo-tracheo-bronchitis comes in—a 10½ month old baby, marked indrawing of the chest, almost no air entry. With trepidation I prepare for my first tracheotomy. Meanwhile, we improvise a croup tent, give the baby oxygen, moist steam, and penicillin 100,000 units q 3 h—improvement occurs and the operation is not needed—afterwards I am amazed at how an infection of this sort can cause a rapid, severe anemia; the latter, of course, responds quickly to liquid iron.

A month old, first born, breast fed, male baby is brought into hospital. There has been gradual constipation, and weight loss, and onset of vomiting—latter has been projectile on two occasions. The baby has lost over a pound since birth; flat films reveal a distended stomach—I think I can see a thickened pyloric muscle. I go back and watch while the baby is fed—are there or are there not peristaltic waves? Am I feeling a mass, or is it rectus muscle? We administer interstitial feedings, give small oral feedings q 2 h, and place phenobarb 1/16 gr. and atropine 1/1000 gr. in each bottle. In the meantime, I read everything I have on the Ramstedt operation, and arrange for another doctor to come out. I am almost disappointed when the infant responds to medical regimen, and gains weight rapidly. Diagnosis: pylorospasm.

A few other pediatric points are worth mentioning. I use a fair amount of Lactogen in my practice, and find it very excellent for those infants who are not breast fed (honestly, Alan, the majority do get mother's milk). Secondly, I do believe that infants who are teething have symptoms—after all, older people have discomfort, when cutting wisdom teeth. So, after a thorough examination, and careful study of the ear drums, to rule out other trouble, I use a candy preparation containing ASA and phenobarb—I think it works. A frequent problem with older children is parentitis—parents who are dominating, who do not permit their children to speak, think and feel for themselves. These are very real problems and the truth to the family may lose you several patients.

Fracture work is easy, pleasant and quite remunerative. My records already show sixteen fractures, seven of which have required general anesthesia—I use 2½% pentothal sodium, administer it very slowly, keep picrotoxin on hand, have an oxygen tank ready for bagging the patient; then while the matron holds the chin, I quickly run around and do the reduction. So far, results have been satisfactory, and the patient is unconscious for only a very few minutes. I make a point of carefully rehearsing what I am going to do prior to the procedure. There is a certain risk in all the foregoing—but that is the problem of

being over forty miles away from other doctors—should one do both the anesthesia and reduction? If one sends all these cases on to the larger centre, very quickly he will become regarded as a high-grade first-aid man, and will lose all the really interesting emergencies. So, I take the risk (or, more accurately, the patient does.) One very interesting case —a tractor accident, 15 year old boy, massive scalp hematomas, left CSF otorrhea, progressive drowsiness—the boy is flown into Saskatoon to a neurosurgeon.

ENT work is, of course, limited. Much is referred. Removal of foreign bodies from eyes, cerumen from ears, treatment of pink eye, and early vigorous treatment of acute otitis medias, are the usual thing. I do my own T and As, and another doctor comes out for anesthesia. We line up three to six pair for a morning, and so far, all has gone well. I must confess to having left tags in a couple to date, but hope to improve gradually. I try to adhere to the text-book indications for T and A—recurrent tonsillitis, recurrent otitis media with adenoid facies and mouth breathing, huge hypertrophied tonsils. To date I have used the Sluder or Daniels tonsillectome, and the snare. Incidentally, have you ever looked into a throat the day after a T and A? I never had before—I swore that the patient had diphtheria!

My major surgery to date has been limited; there has been much minor work. One interesting case was in an 18 month old little girl with clinical appendicitis—we watched overnight, and then operated—the appendix was minimally inflamed but there were mesenteric glands almost walnut-sized. Since there was no associated upper respiratory infection, I felt differentiation was impossible without operation. My first New Year's Eve in practise is spent in rather an unusual manner—on December 30th a sixty-two year old woman comes into the office with acute RUQ pain; there is marked rigidity in the RUQ; she is admitted as an acute cholecystitis. We use expectant treatment for a day—demerol for pain, penicillin, streptomycin, and follow her temperature, pulse and white counts carefully. On December 31st she is worse—temperature still 102°, WBC has risen from 13,000 to 16,000, there is now gradual distension and absence of bowel sounds, and now I can definitely feel a mass of distended gall bladder in the rigid RUQ. Surgery is imperative—I take the patient into the larger centre, and we usher in the New Year in the middle of a gall bladder operation—at the latter, the gall bladder is huge, massively distended and the tip is turning gangrenous. Cholecystotomy is done.

There are also a fair number of interesting medical cases. A woman comes in with acute low back pain—we put her to bed, give her infra-red, methyl sal rubs, and Xray her. There is some sacroiliac arthritis, but more interesting still—there are pathological changes in the 11th and 12th right ribs. I send the films to a radiologist—the report returns: metastatic carcinoma. I recheck the woman from head to toe—no primary. She is sent to the Cancer Clinic at Saskatoon; their first and second choices are hypernephroma or multiple myeloma. Finally they resect a rib. Diagnosis? Polyostotic fibrous dysplasia!!

A seventy-five year old man comes in —on first glance I think that he has pernicious anemia. The case is absolutely text book—hemoglobin 17%, color index 1.4, macrocytosis, anisocytosis, poikilocytosis, superimposed iron deficiency,

superimposed subacute combined degeneration spastic type. There is a loud hemic systolic murmur. Due to age and cardiac status, we treat him without transfusion. We use vitamin B12 and also ferrous gluconate and glutamic acid HCl capsules (for the achlorhydria)—on discharge three weeks later the hemoglobin is 65%, RBC 3.8 million.

At present there are three good clinical cases in hospital—an acute rheumatic fever following tonsillitis, showing the usual dramatic response to salicylate-bicarbonate therapy; a case of left-sided massive spontaneous pneumothorax, with shift of the trachea and mediastinum, absent breath sounds, and a beautiful Xray picture of same; and a case of status asthmaticus—this patient, with poor response to sedation, adrenalin and aminophylline, has been placed on cortisone therapy tonight, and as soon as he is well enough he will be transferred to a specialist.

And then, of course, there are the psychosomatic problems, and frankly neurotic patients. Conservatively, I would state that the two groups comprise 35% of general practise.

It's awfully simple to tell a patient that it's his "nerves", that he is working too hard; it's even easier to prescribe phenobarb. Granted, chronic neurotics with no insight are best treated with sedation, but a fair percentage can be helped by office psychotherapy—talking to the patient, using a subtle plan to find out his worries, guilts and anxieties. It constantly amazes me to discover the number of patients who have been degallbladderized, deovarized, deuterized, and who, the following year, still have their tension headaches, and sleeplessness and anxiety states.

There are other problems for a young and green doctor. Many people come in with their own diagnoses—they merely want you to confirm them. Suppose you disagree? And then there are the mothers who know that junior should have his appendix out—after all he's had a bellyache twice—if you do a complete history, physical, blood check and urine, it's only three or four dollars; if you lop out the appendix, it's over a hundred. So far, my conscience has won out, but it's not difficult to see how many doctors bow to more remunerative measures.

Well, it's getting late, and the reader is probably getting bored. It's usual to summarize at the end of an article. What can I say? There are major drawbacks—no cultural life, no symphonies, no cushion-seated movies, getting stuck in snowdrifts, having to walk miles in 40° below zero weather. But there are good features—in six months I've probably done more procedures than a new young city GP will do in five years, I have my own modern little hospital, my wife has set up a fair Xray department, we have a blood donor list, we have a staff and especially a matron R.N. who are all willing to pitch in when we are busy and flooded with emergencies. At present, our whole life is the practice—probably too much so. But in fifteen months or so, we will have liquidated our debts of over $6000, we are living comfortably, and have made friends (enemies too, probably) in a new environment. Would I do this for the rest of my life? Probably not. But—come on in, chum, so far the water is fine.

ALBERT SCHWEITZER*

S. GREBEN, B.A., 5T3

THE EMBRYO DOCTOR of 1952 vintage becomes acquainted early in his training with the desirability of viewing his patient not as an organ or a disease, but as a whole man. Albert Schweitzer is of interest to students of medicine as an example of a physician who is not just a scientist, not just a healer, but a complete man in the fullest sense.

On Jan. 14, 1875, at Kayersberg in Upper Alsace, a son Albert was born to the town pastor. At the age of five he received his first piano lessons from his father, and three years later, though he could barely yet reach the pedals, he began to play the organ.

In his early years of school, young Albert was by no means outstanding. He was slow to learn, but from the beginning questioned all that he was taught, and all that he read.

During his attendance at a classical high school at Mülhausen in Upper Alsace, he began reading prodigiously, often finishing a book in one sitting. Schweitzer, in his autobiography, describes himself at age fourteen as a resented nuisance, because of his hunger to know and to understand. He cites as one of the chief disciplines of his life the learning to contribute to inane conversation, as a member of polite society.

At the age of eighteen Schweitzer went to Paris. He was taken on as an organ pupil by Charles Marie Widor—César Franck's successor as professor of the organ at the Paris Conservatory.

Schweitzer became a student of Theology and Philosophy at Strassburg University. He studied especially the life and teachings of Jesus, refusing to accept the traditional interpretations, but all the time seeking further truths. During the course of this study he was drafted for his year of military service. He took his Greek Testament with him on manoeuvres, and studied it at night in the field.

He wrote a dissertation on the problem of the Last Supper, and a doctorate in theology; he wrote a thesis on the religious philosophy of Kant, and a doctorate in philosophy.

At the age of 27, during one summer vacation, Schweitzer began the writing of a book on the art of J. S. Bach, his musical god. It was written for the Paris Conservatory, and is still the classical interpretive work on Bach. Says Schweitzer: "That I wrote the book in French at a time when I was lecturing and preaching in German was an effort for me." The book was published in 1905 and was acclaimed not only in France, but in Germany. The question of a translation was raised. So in the summer of the following year, having just finished a book called *Quest for the Historical Jesus*, he set about to translate the French Bach to German. "I soon became conscious that it was impossible for me to translate myself into another language, and that if I was to produce anything satisfactory I must plunge anew. So I shut the French Bach of 455 pages with a bang, and began the writing of what

A paper delivered to the Osler Society of the University of Toronto.

became, to the dismay of my publishers, a German one of 844."

All this time Schweitzer maintained a keen interest in organs and organ-building. He became convinced that the contemporary organs were not the best, but that the old ones, built with care and understanding, were far better—those built about 1850-1880. He spent much time answering queries in writing and in person, attempting to convince Europeans to save the fine old organs. It was later said of him by his friends, "When in Africa he saves old natives; when in Europe he saves old organs."

At the age of 21, while a student, Schweitzer was ill at ease. He says: ". . . It struck me as incomprehensible that I should be allowed to lead such a happy life, while I saw so many people around me wrestling with care and suffering. . . . While at the University and enjoying the happiness of being able to study and even to produce some results in science and art, I could not help thinking continually of others who were denied that happiness by their material circumstances or their health. . . . There came to me the thought that I must not accept this happiness as a matter of course, but must give something in return for it . . . I settled with myself that I would consider myself justified in living till I was thirty for science and art, in order to devote myself from that time forward to the direct service of humanity."

The best method of carrying out his decision was not immediately apparent to Schweitzer. He thought at first of taking charge of abandoned children and educating them, but the offer of his help to the institutions in charge of such children was not accepted. He considered devoting himself to tramps and discharged prisoners, but this plan was similarly unfulfilled. Then one morning in 1904, three months before his thirtieth birthday, he made his choice. ". . . I found on my writing-table in the College one of the green-covered magazines in which the Paris Missionary Society reported every month on its activities." The article told of the need of help in the Gaboon, the northern province of the Congo Colony. Schweitzer finished the article and resumed his work. His search was over.

Schweitzer wrote letters to a few friends and relatives announcing his intention to become a jungle doctor. He was at once advised by all concerned, and by many who were not, of the folly of his scheme. He was burying his talent. He was like a general going into the firing-line. He could best serve by leaving such courses to those who could do no better, and applying those of his talents which other men did not possess. But his decision was not to be changed.

Schweitzer tells us that he has, as a man of individual action, been often approached for advice by others who wish to set out on a similar adventure. ". . . only in comparatively few cases have I taken on me the responsibility of giving them immediate encouragement. I had often to recognize that the need 'to do something special' was born of a restless spirit. . . . Only a person who can find value in every sort of activity and devote himself to each one with full consciousness of duty, has the inward right to take as his object some extraordinary activity instead of that which falls naturally to his lot. . . ."

In October, 1905, at the age of thirty he began his medical studies. As he was a member of the faculty of the University, he was allowed to attend the lec-

tures without paying fees. While studying, he continued giving theological lectures and preaching on Sundays. He also travelled to give organ recitals.

". . . The study of the natural sciences came as a wonderful experience. I had all along felt it to be psychically a danger that in the so-called Humanities with which I had been concerned hitherto there is no truth which is self-evident. . . . Now I was suddenly in another country, amongst men who took it as a matter of course that they had to justify with facts every statement they made."

In the spring of 1908 he entered for examinations in the pre-clinical course. Apart from the fact that the memory of a man in his thirties is not that of a 20-year-old, he confides that the conscientious scruples of the pure scholar in quest of knowledge for its own sake nearly ruined his examination chances. ". . . I had stupidly got into my head the idea of studying pure science only, right to the end, instead of preparing for the examination. It was only in the last few weeks that I let remonstrances from my fellow-students make me become a member of the cramming-club, so that I got to know what sort of questions, according to the records kept by the students, the professors usually set, together with the answers they preferred to hear . . ." The last few weeks cost him the worst crisis of fatigue in the whole of his life.

The three clinical years proved less of a strain because he found the various subjects more closely allied to one another. In October 1911 he graduated as Doctor of Medicine. He says: ". . . As I strode out of the hospital into the darkness of that winter evening, I could not grasp the fact that the terrible strain of the medical course was now behind me. . . ."

Six months later he married Helene Bresslau, who had taken a special nursing course to be able to assist him.

Preparations completed, they set out for Africa. They travelled down the Ogowe River by paddleboat and canoe, to the Lambaréné Mission. Here Schweitzer transformed a hen-house into his first hospital. He could have no doubt that his work was needed and that the natives had suffered. He was treating 30 or 40 patients a day, suffering from malaria, heart disease, dysentery, elephantiasis, suppurating bone injuries and skin diseases of all kinds. The natives called him "Oganga" (fetishman). One native girl, baffled by anaesthesia, wrote in the mission school of the wonderful doctor. "First of all he kills the sick people; then he cures them, and after that he wakes them up again."

Schweitzer set about building a hospital with reluctant native assistance. One day, felling trees and hauling logs, he called on a white-clad native for help. Said the native, "I'm an intellectual. I don't drag timbers around." "You're lucky," replied Schweitzer, "I, too, wanted to be an intellectual, but I didn't make it."

He managed to practise his music on a piano with organ-pedal attachments built for the tropics—a gift of the Paris Bach Society, of which he was the organist. He spent the nights learning by heart the compositions of his favorite masters. Also in the evenings he began his *History of Civilization*.

War broke out. Schweitzer and his wife were interned by the French authorities and, forbidden for a time to practise his medicine, he had time to work on his writings.

In 1917, interned in France as a prisoner of war, Schweitzer contracted dysentery. When the war had ended he was still a sick man. He had no money, but was helped by friends to begin several extremely successful lecture and concert tours. It was on one of these tours that Schweitzer met Sir Wilfred Grenfell, founder of the great medical welfare work in Labrador. Schweitzer wrote in the guest-book of the house in which they met; "The hippopotamus meets the polar bear".

Having gathered enough money, he returned to Lambaréné, this time without his wife. He found the hospital in a terrible state of breakdown. He decided that it should be moved and, again doing most of the work himself, rebuilt at a point two miles up the river. Help began to arrive in the following few years: an assistant doctor, and two nurses. Donations of money and supplies arrived so that the work became easier. He was able to return once more to Europe and continue his lecturing and concerts.

It has been in this way, alternating between his European tours and Lambaréné that Schweitzer has spent the recent years of his life. He has during this period crystallized the essence of his philosophy which he calls Reverence for Life. This he expresses thus in his *Civilization and Ethics*:

"A man is truly ethical only when he obeys the compulsion to help all life which he is able to give aid to, and shrinks from injuring anything that lives. He does not ask to what extent this or that life deserves his sympathetic interest as having value, nor whether and to what extent it is capable of response. Life as such as sacred to him. He tears no leaf from a tree, plucks no flower, and is careful to crush no insect. . . . He is not afraid of being laughed at as sentimental. It is a fate of every truth that it shall be a subject for laughter before it is generally recognized."

In essence Schweitzer's ethic is that it is good to maintain life, and it is evil to hinder or destroy life.

Concerning the application of Reverence for Life by every man, Schweitzer writes:

"Open your eyes and look for a human being or some work devoted to human welfare which needs a little time or friendliness, a little compassion or sociability, or work. There may be a recluse . . . an invalid . . . an old man or a child. . . . Hunt, then, for some situation in which your humanity may be used. . . ."

Albert Schweitzer's message to a group of students was this; "I don't know what your destiny will be. But one thing I know: the only ones among you who will be really happy are those who have sought and found how to serve."

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ABSTRACTS

PSYCHIATRY

Studies on Excretion of Total Neutral 17-Ketosteroids in Schizophrenic Patients: Gottfried, S. P. and Minsky, I. Arch. of Neur. and Psychiat., **66:** 708-713, 1951.

It has been suspected that some defect may exist in pituitary-adrenocortical function in schizophrenic patients, but different methods of investigation have yielded inconsistent results. In this study, the authors have measured the 24-hour urinary excretion of 17-ketosteroids in small groups of schizophrenics (young males with a diagnosis of 4 years' duration) and a control group of 8 normal young males. The excretion of 17-ketosteroids by 21 schizophrenics at the time of admission to hospital was lower than that for the normal group, but not significantly so. Four patients given insulin shock therapy all showed a decided increase in excretion during treatment. Five days after treatment the excretion had decreased, but not so low as the pretreatment levels, although in 2 weeks' time the values were approaching pretreatment levels, despite continued clinical improvement. Of the 4 patients studied during electric shock therapy, none showed any increase in excretion of 17-ketosteroids during or after treatment, but 3 of the 4 had had relatively high pretreatment levels. Seven patients who received no shock therapy were followed. Five showed marked clinical improvement, and in 4 of these there was an increase of 100-700% above admission level, while in the 5th patient there was an increase, but not a significant one. Of the 2 patients who failed to show clinical improvement neither showed any significant increase in excretion of 17-ketosteroids. The results are inconclusive, and the authors are undertaking more extensive studies.

F. M. Hill

Social Adjustment of Neurotic Patients After Prefrontal Leucotomy: Baker, A. and Minski,L.; B.M.J., **1239:** (24 Nov.), 1951.

This is an article dealing with the results of a follow-up into the social adjustments of thirty neurotic patients treated by bilateral prefrontal leucotomy. The length of time since operation varies between eighteen months and eight years.

The type of patient selected for operation had had considerable drive previously; marked tension had been the presenting symptom; no other treatment had given relief; and the patient was considered to be incapable of living life outside hospital unless relieved from illness. The average duration of illness was eight years.

Post-operatively the patients were divided into four groups: Group 1—those who were symptom-free and had no defect which hampered their lives; social adjustment entirely satisfactory. Group 2—much improved but with some persistent symptoms or defects which prevent full enjoyment of life or participation. Group 3—improved but seriously handicapped; usefully occupied but with serious defects. Group 4—a social burden—a little less difficult to nurse, but still a burden to family and community (i.e. detached, apathetic and inert).

Although a limited group, it was found that recovery was greater in females than males; in married persons than single; in middle-aged than young. Two thirds were found socially well adjusted or with minor defects only which consisted of small errors in judgment.

F. P. Ceresney

Antabus in the Management of Chronic Alcoholism: Moore, J. N. P. and Drury, M. O'C., Lancet, **261:** 6693, 1951.

This article summarizes the results of a series of cases in which chronic alcoholism was a main symptom and in which antabus was used for the relief of this symptom. The rationale involved is that alcohol after antabus produces unpleasant symptoms leading to cessation of drinking. The method used was withdrawal of alcohol on admission to hospital, explanation of the principle of antabus theory, and then the administration of one gram of antabus each morning for three days. A test dose of alcohol is given on the fourth day to enable the patient to experience the reaction. The dose is then adjusted to ¼ or ½ gram according to toxic symptoms.

This series was of 118 cases labelled as alcoholics representing a wide variety of psychiatric problems. On follow-up after at least six months of therapy 71 patients replied of whom 51% were totally abstinent and 32% could control their drinking. Considering those who failed to reply as failures, the authors present a 50% improved rate, but they point out that relapses may not be serious; the patient is often able to restart antabus on his own or with the aid of a relative.

The conclusions drawn are that antabus is a valuable aid in management of alcoholics: 1. It provides a simple objective re-enforcement of his abstinence. 2. It shortens the stay in hospital and improves the doctor-patient relationship. 3. It provides a routine hospital procedure during which further psychiatric investigation may be carried out. However, antabus may produce a shock-line state; it is an aid to psychiatry not a substitute; it does little for psychopaths, periodic drinkers, and those with intellectual deterioration. Hence antabus is a valuable adjunct to a total psychiatric plan of diagnosis and rehabilitation.

D. Barr

PEDIATRICS

Pneumonectomy in the Treatment of Tuberculosis in Children: Botelho, et al.; Diseases of the Chest; **20,** 6; 642; 1951.

This paper deals with four resections performed in Brazil, in which the patients were two white and two negro girls, varying in age from eight to thirteen.

In each the disease was on the left side —total atelectasis was found with patent main and lobar bronchi. Atelectasis was due to obstruction of peripheral bronchi with chronic pneumonitis, secondary bronchiectasis and active tuberculosis. Each case history is given, complete with the X-ray film pictures and the details of the surgery involved.

Penicillin was used as a prophylactic on all cases and the authors state that they obtained uncomplicated, smooth and early recovery during immediate post-operative period with excellent healing. All gastric washings became negative soon after pneumonectomy and remained so.

Although resection of the 5th and 6th ribs without the removal of the transverse processes in children has not yet resulted in scoliosis, the authors agree that larger groups of children treated in this manner must be followed in order to make a more final appraisal.

F. P. Ceresney

PHYSIOLOGY

Blood Pressure Variation in the Two Arms: Rueger, M. J., Ann. Int. Med., **35:** No. 5, Nov. 1951.

Using standard techniques and exhibiting great care to eliminate tension variation, the author has taken 1,388 blood pressure readings on each arm of 755 unselected ambulatory patients. He has found that 991 readings were higher in the right arm, 273 higher in the left and only 132 equal. In those varying, over half were greater than 10 points systolic and over one third were greater than 10 points diastolic. In some a variation of greater than 25 points systolic were recorded.

The degree of variation was greatest in the hypertensive group, sex and age making no significant impression. The author postulates that the causes for this variation between arms may be due to the caliber of the two arteries, external pressure on vessels, atheromatous plaques, or

the state of contraction of the vessels.

It is concluded that this variation may be important in life insurance and industrial or military acceptance where a definite maximum blood pressure level is a basis of rejection. Both arms should thus be checked, and if no significant difference occurs, then one arm should be used consistently in the follow-up.

H. Stein

DERMATOLOGY

Aureomycin: Its Topical Use in Some Skin Diseases: B. Solomons, B.M.J., No. 4730, pp. 522-525, 1951.

The author states that in Dublin dermatological clinics a very high percentage of cases are pyogenic infections caused mainly by Staphylococcus pyogenes aureus, Streptococcus haemolyticus, Proteus vulgaris and Pseudomonas pyocyanea. He found that a 3% aureomycin hydrochloride ointment in petrolatum and a wool fat base was a potent, non-toxic easily applicable drug which showed itself capable of dealing with these organisms. Sensitization occurred only in individuals with a past or present history of allergy.

Of 22 cases of sycosis barbae, 12 of folliculitis of other areas, 57 of impetigo, all but 1 case of folliculitis and 2 of impetigo secondary to atopic dermatitis were cured in 1-5 weeks. A miscellaneous group of 53 patients also treated with aureomycin ointment consisted of cases of gravitational ulcer, acne vulgaris, acne necrotica, chronic paronychia, herpes zoster, post-auricular dermatitis, pustular psoriasis, verruca vulgaris and verruca plana. These showed very little response to treatment.

The author concludes by stating that of all the cases treated with aureomycin ointment the most dramatic results were shown in cases of sycosis barbae. However, he points out that the efficacy of aureomycin ointment in other pyogenic infections is no greater than that of penicillin but it is to be preferred to penicillin cream or ointment in that there is an absence of untoward reaction.

M. Magazanick

MEDICINE

The Treatment of Subacute Bacterial Endocarditis with Aureomycin: Friedberg, C. K., J.A.M.A., **148:** 98, 1952.

The author describes his use of aureomycin in 11 cases of SBE. Eight of these cases had been diagnosed by blood culture; the remainder, on clinical grounds. Four to six grams of the antibiotic were given daily in divided doses for approximately eight weeks. Whenever, in spite of aureomycin therapy, the fever and/or the bacteremia persisted or recurred, other antibiotic therapy (usually penicillin) was instituted.

He found that of the eight patients who initially had positive blood cultures, only two recovered when given aureomycin. As well, two of the three cases that did not show a positive blood culture were cured, giving a total of 4 out of 11 cases cured by this antibiotic. When aureomycin proved ineffective, the patients were cured by penicillin, and in one case, gantrisin plus five other antibiotics.

During aureomycin therapy the toxic effects observed were limited to the G.I. tract: nausea, vomiting, and diarrhea.

Failure of the aureomycin cannot be ascribed to *in vitro* resistance since the organisms were found to be quite sensitive. It may be that in the doses administered, the antibiotic was merely bacteriostatic and not bactericidal. Consequently, with discontinuation of therapy, the viable organisms were able to resume their growth.

The author concludes that intramuscular penicillin remains the treatment of choice in most cases of SBE. When the organism is resistant to this antibiotic, as may occur with gram-negative infections, aureomycin warrants a clinical trial.

M. L. A. Auerback

Observations on the Alterations in Electrolytes and Fluid Balance in Patients with Cirrhosis of the Liver With and Without Ascites: Ricketts, W. E. et al. J. Clin. Invest., **30:** 1157-1170, 1951.

Seven patients with cirrhosis of the liver, confirmed by biopsy, 4 with and 3 without ascites were studied at the University of Chicago. The studies were made under conditions of constant daily intake of food, calories, water and electrolytes for periods of 2 weeks to 7 months. Body weight, and detailed chemistry of the blood, ascitic fluid and urine were followed to determine the effects of a reduced sodium intake of 19.2 mEq. daily, 37.3 mEq. daily, the addition of 4 Gm. of sodium chloride, large water intake, paracentesis, diuretics and parenteral protein administration.

The authors conclude that retention of fluid in cirrhosis is related to retention of the sodium ion, which they think is due to increased reabsorption of sodium chloride by renal tubules. The urinary excretion of NaCl is decreased in patients with ascites, but not in those without ascites. Salt added to the diet resulted in oliguria in all cases with ascites, the excretion of Na and Cl remaining low and the concentration of electrolytes in the serum and ascitic fluid remaining unchanged restriction of salt intake was indispensable to the control of fluid retention in patients with ascites. Repeated paracenteses, diuretics or the administration of large amounts of water could not control the ascites unless salt was also restricted. The retention of sodium ions was not dependent upon hypo-albuminemia alone, according to the authors, since administration of salt-poor albumin did not correct the deficient salt excretion.

F. M. Hill

Intravenous ACTH Therapy in the Treatment of Bronchial Asthma: Segal and Herschfus, Diseases of the Chest, **20:** 6, 575-587, Dec. 1951.

The authors treated 10 patients with severe bronchial asthma with intravenous ACTH by continuous infusion. They adopted the intravenous route because tachyphylaxis, eosinophil escape, allergic and anaphylactic reactions have been observed with ACTH intramuscularly. While the I.M. administration must be repeated every 6 hours, they report that continuous I.V. infusion of ACTH in much smaller doses prolongs adrenocortical activity for much greater periods. Their patients received a total of 10-20 mg. given over a period of 1 to 9 days. Patients received these doses of ACTH contained in a continuous infusion of 5% glucose in distilled water, 3 litres/24 hours, with 0.5 Gm. of aminophylline per litre of fluid.

The results were good: seven patients became symptom-free for periods up to 6 weeks, followed by partial remissions. The remainder obtained partial remissions only. There were no complete therapeutic failures.

The advantages of the continuous I.V. route over the intermittent I.M. route are: (1) more rapid therapeutic effect; (2) maintenance of effect throughout the 24 hours; (3) total dose is 1/5 to 1/8 of the I.M. dose; (4) an accelerated rate for effects to appear; (5) resistance to I.M. ACTH and eosinophil escape are overcome. The undesirable effects observed promptly were "mooning" of the face, weight gain, anxiety and eosinopenia.

The authors believe that I.V. ACTH is an effective means in the treatment of severe bronchial asthma. Also, they believe that antibiotics should be administered during therapy to combat any lowered body resistance to infection produced by ACTH.

M. Wasylenki

Acute Pulmonary Edema, Endogenous and Exogenous, Causes with Therapy: Belknap, E. L., Diseases of the Chest, **20:** 6, Dec. 1951.

This paper is a review of the theories of causation and the therapy of acute pulmonary edema. Pulmonary edema is defined as a transudation of serous fluid into the alveoli. It is endogenous if resulting from mechanical or neurogenic factors, and exogenous if resulting from irritant or infective factors.

There are three principal theories as to its causation. The oldest one, the "mechanical" theory, postulates that when the left ventricle cannot expel blood as rapidly

as the right ventricle, back pressure in the pulmonary vessels forces fluid into the alveoli.

The "neurogenic" theory holds that adrenalin produces hypertension in the aorta, carotid and cephalic vessels which activates a reflex producing a sudden increase in pressure in the pulmonary vessels with resulting pulmonary edema.

Drinker explains pulmonary edema as a leakage of capillary fluid into the alveoli resulting from sustained increase in capillary pressure and tissue anoxia with increased capillary permeability.

In treatment all three causes must be considered. The mechanical theory demands relief of pulmonary stasis by tourniquets and venesection. The neurogenic theory suggests the use of narcotic and sedative drugs like morphine and phenobarbital. Drinker's "anoxia" theory has given a basis to the newest form of therapy, the use of oxygen under positive pressure to aid in forcing fluid back into leading capillaries.

Pulmonary edema from exogenous causes such as war gases, the oxides of nitrogen, cadmium fumes, phosgene, and smoke may not develop until after a latent period of several hours. It is important not to miss the history of occupational exposure as such cases respond so well to the "oxygen under pressure" treatment.

J. B. Redford

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NEWS AND NOTES

MEDICAL SOCIETY

Syd Wax, president of the Student's Administrative Council and of the Medical Society, has recently returned from a student conference which was held in Rio de Janeiro. Prior to this he had spent one week in Scotland at a similar conference . . . Doubtless, he will have much to report.

* * *

Recently, the Medical Debating Society was engaged in a contest with the University College Parliament, on the resolution: "That Canadian Universities should elect members to Parliament." The government position was taken by Meds and represented by Bill McCrae of 5T5 and Lyall Moran of 5T6, while the UC group upheld the opposition with Vern Turner and Roger Bull. It was decided by those present that Meds, defending the affirmative side, had won the debate, 24-14.

* * *

On February 20th, the ever-successful Meds-at-Home took place at the Royal York Hotel. Benny Louis and his orchestra provided soft and dreamy music, while the Entertainment Committee assailed the revelers with "The Doctor's Dilemma" . . . It was, of course, a huge success.

* * *

In the field of Medical Athletics, Senior Meds won the Defoe Cup, emblematic of Lacrosse superiority within the confines of the university. All the members of the team were in the class of 5T4.

Water sports have always been the forte of the Medical Athletes, and they have continued in the tradition by winning both the Freshman and Intermediate swimming meets. Meds is fielding seven out of the twenty-one intramural water polo teams.

Hockey and basketball have been progressing rapidly, with great activity in this sphere, while at time of writing, a great squash tournament, again intramural, is in progress.

The Medical Athletes are now in second place in the Reed Trophy race.

C.A.M.S.I.

C.A.M.S.I. representative Milt Francis reports the continuation of those successful movies and hopes soon to bring some interesting personalities to address the Medical Faculty.

FACULTY

Medical Alumni Bursarys were won by W. D. Friend, R. F. Brown, and W. J. Corbett of Meds 5T2 and by H. P. Brent Meds 5T4.

* * *

Under the sponsorship of the Dept. of Ophthalmology and Dr. A. J. Elliot, Professor of Ophthalmology, a refresher course is to be held March 31-April 4. Guest speakers will be Dr. D. B. Kirby of New York and Dr. T. Keith Lyle, F.R.C.S. of London.

* * *

The Ontario Medical Association, in conjunction with the University of Toronto, held a refresher course for general practitioners at the new Hospital for Sick Children from Feb. 11-16. Sections were held on Pediatrics, Medicine and Surgery and proved most interesting to the 300 physicians registering for the course.

* * *

The G. Roy Sproat and Catherine Sproat Bursaries have been awarded to E. St E. Thompson and W. F. Mackenzie Meds 5T2 and to Harold Fields 5T3.

* * *

A refresher course in Broncho-esophagology, arranged by Dr. P. E. Ireland of the Dept of Oto-Laryngology, was held Feb. 11-20. The guest speaker, Dr. L. H. Clers, is Professor of Broncho-esophagology at Jefferson Medical School in Philadelphia.

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from
obligation *

DISPENSE:
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and give out *

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* *Authority Oxford Dictionary.*

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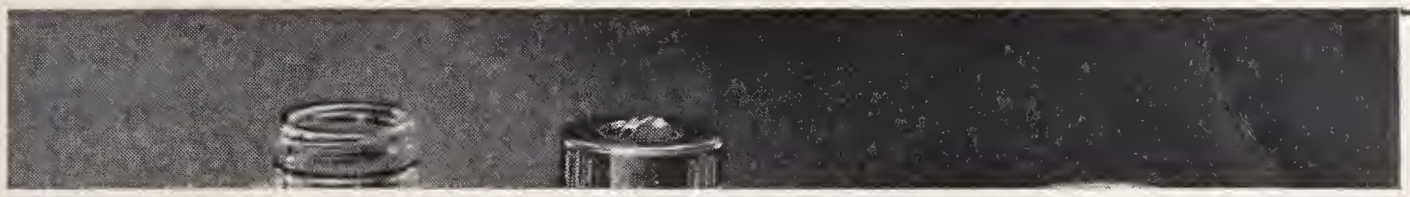

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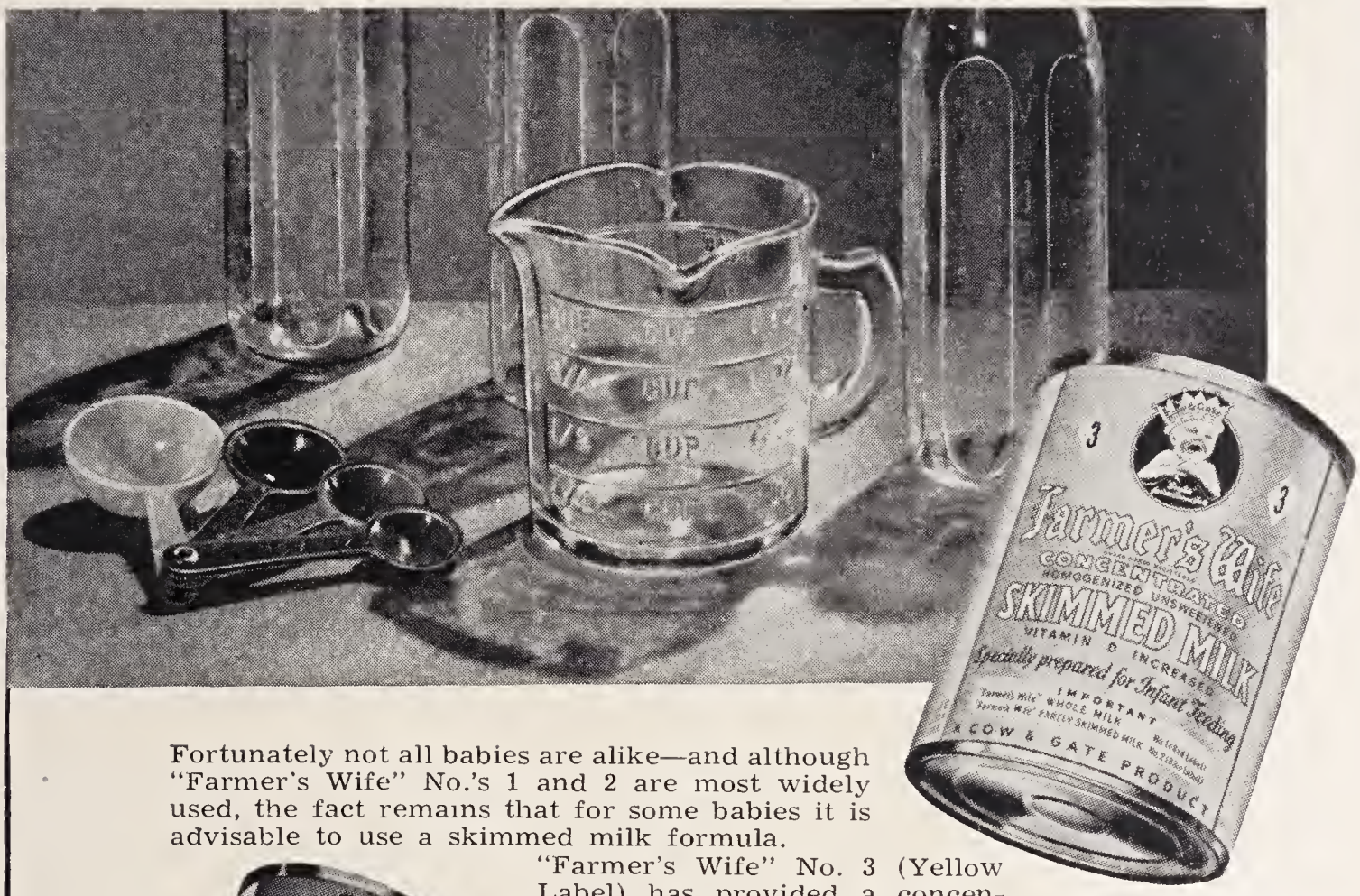

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1. Marbach, A. H.: Am. J. Obst. & Gynec. 55: 511, 1948.

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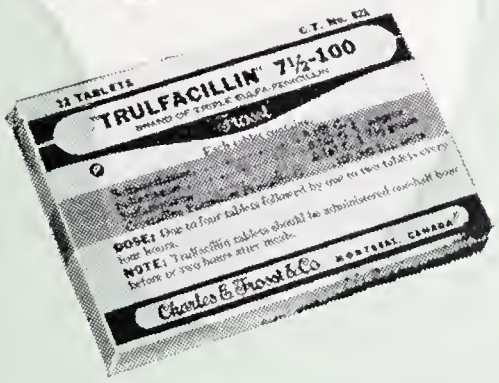

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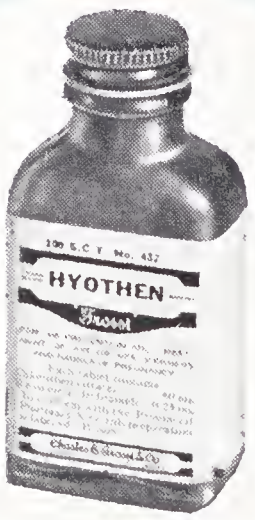

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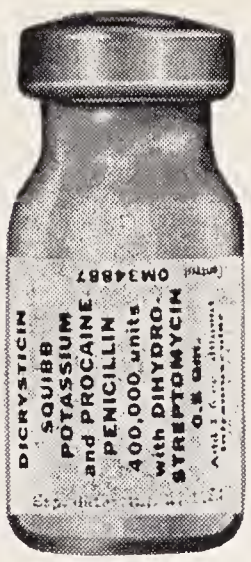

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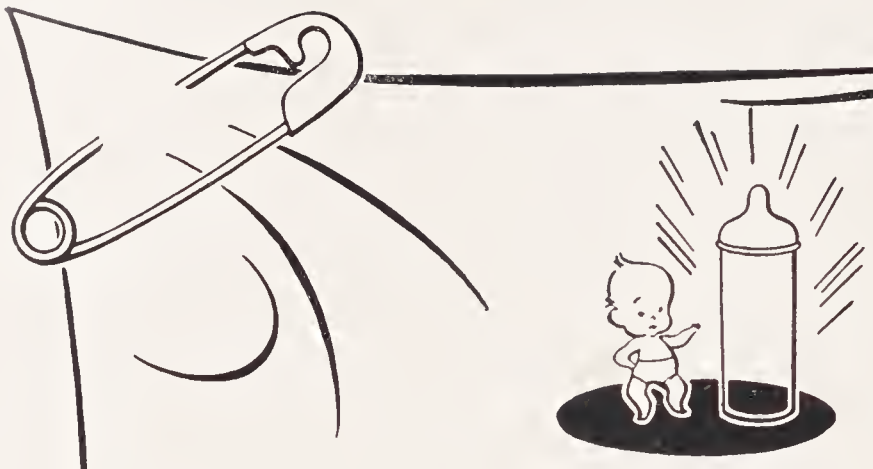

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2 mg. *useful in some macrocytic anemias in which B_{12} is not effective*

Concentrated Extract of Stomach
0.3 Gm. *complement to B_{12} necessary for normal red blood cell maturation*

Vitamin C
50 mg. *aids in absorption of iron*

for comprehensive blood therapy

VENTRILEX *is available in bottles of 100 and 1000 Kapseals®*

Kapseals® VENTRILEX Trade Mark

Combining important principles useful in treatment of the anemias.

PARKE, DAVIS & COMPANY

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